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VOL. I.—8TH YEAR. SYDNEY: SATURDAY, JANUARY 15, 1921. No. 3.

MATERNAL MORTALITY IN CHILDBIRTH.[1]

By J. S. Purdy, D.S.O., M.D., C.M. (Aberd.), D.P.H. (Camb.), F.R.S.E.,

Medical Officer of Health for the Metropolitan Combined Sanitary Districts, Sydney.

After the excellent sectional presidential address at the recent and last Australasian Medical Congress under the old regime by Dr. Fourness Barrington, a past master in the art of obstetrics, which some of you heard and all must have read with interest and profit, it will ill become me to attempt to deal with this subject from other than the administrative or preventive medicine point of view.

Had any apology been needed for a mere public health official venturing to discuss this subject, such might have been found in the introductory remarks by Dr. Herbert Williamson, the President of the Obstetrical Section, at the recent annual meeting of the British Medical Association at Cambridge.

> We have come to realize more and more that obstetrics is essentially a branch of preventive medicine. I do not think it is speaking too strongly to say that it is the most important branch of preventive medicine. The dangers of childbirth are to a great extent preventible and the more clearly this idea is grasped and acted upon by the medical profession and the general public, the lower will be puerperal mortality and morbidity.

Now, although in civil life at present it cannot be said that the medical profession or service exists primarily for the prevention of disease and secondly for the care and treatment of the sick and wounded, yet the tendency of the time, more especially in Great Britain, has been increasingly to recognize that the prevention of disease is more and more a function of the State and to enlist the services of trained medical men and women therein.

This is seen most markedly in the strict supervision in England over the whole question of maternal mortality and infant welfare. These subjects are so correlated in public health administration as to form one problem, a problem which has been recognized as urgent in Great Britain, where the birth-rate for some years has been steadily decreasing and where the population has been depleted by war. How much more urgent, however, is the problem from a national point of view in our "unpeopled continent of Australia," where the birth-rate has also decreased, where 41.9% of the population of the whole continent are congregated in the six State capital cities, showing the same tendency as in England to urbanization of the people and where the reduction in national fertility consequent on the loss to Australia by war of nearly 60,000 fathers or potential fathers in the flower of their manhood, has lessened the chances of motherhood. We should, therefore, emphasize the importance of considering the causes of infant and child mortality with a view to their reduction and thus with the decrease of the death-rate at later ages maintain effective fertility to the utmost extent. In no portion of the British Empire is there so urgent a call for population to develope a whole continent, at present the most sparsely peopled, which at its present rate of natural increase will take 47 years to double its all-too-small population. For this great country with such undeveloped natural assets as to make it without a rival in this respect at the present stage of the world's development, the most pressing of the many problems is population.

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on October 29, 1920.

Decline of the Birth-Rate.

The Royal Commission on the decline of the birth-rate in New South Wales which reported in 1904, collected much interesting data and made valuable suggestions, some of which have been given effect to, others, such as the notification of still-births, remaining still-born.

It is interesting to note that in the metropolis of Sydney, where 41.5% of the population of New South Wales are located, the birth-rate in 1888 was 41.09‰, whilst in 1919 it was only 23.05‰ of the population, the rate being 14% below the average of the preceding five years and the lowest on record. Whereas owing to the reduction in the general death-rate, the natural increase in population in 1918 was as high as 15.47; last year it fell to 9.

The next lowest recorded birth-rate for the metropolis was in 1903, after which there was an increase to 1912 and then a gradual decline to 1914, since when the decline has been 5‰.

The main factor in the reduction of the birth-rate has been that the size of families has been reduced, largely and probably chiefly in consequence of intentional restriction of child-bearing.

The birth-rate, generally speaking, declines as the standard of comfort, convenience and earning power of a community increases.

The decline in the birth-rate in a young, virile community in the largest centre of population in an under-populated continent is a feature which should make pause to think those who are concerned with the future security of the Commonwealth.

The politician has discovered the baby, formerly the care solely of the mother, but now recognized as an asset of national importance.

Equally important is it that the claims for the protection of motherhood be recognized, thus insuring to those who come after us, the full heritage of this generation.

If we can focus attention and interest on this problem of maternal mortality in childbirth, as a profession we will be doing a national service.

A vast amount of work remains to be done, however, before every mother and child can be regarded as having a reasonable prospect of freedom from risk of life and health at the most vital period of their lives.

As far as infantile mortality is concerned, in Australia we can show a remarkable decrease, which, like the lower death-rate at most higher ages, is all to the

good, while the same cannot be said for the maternal mortality in childbirth.

As far as I know, the marked decrease in infantile mortality cannot be better illustrated than by the diagram showing the remarkable results achieved in the metropolis of Sydney, a reduction by two-thirds of the loss of life among children under one year.

Infantile Mortality.

A striking feature of the study of the infantile mortality of Sydney is the fact that, whereas there has been a marked decrease in the general infantile mortality-rate, there has not been any appreciable decrease in the death-rate of infants in the first month. The greater reduction in the later months of infancy has been largely in respect to diarrhœal diseases. The practically stationary position of the mortality in the first month of life is owing to the fact that congenital diseases and enfeeblement are largely responsible for the deaths in this period.

An examination of the causes of death of the 1,175 infants who died in the metropolis of Sydney in 1918, showed that 59% died from prematurity and developmental diseases. Under the last heading are included injury at birth, debility at birth, atelectasis, congenital defects, atrophy, marasmus and dentition.

Some of these causes are due to conditions operating at or before the birth of the infant. Syphilis is recognized as a common cause of premature birth and of still-birth. It is uncertain as to what extent deaths registered as atrophy, marasmus and debility are due to syphilis from ante-natal infection or congenital causes or to lack of adequate care at and soon after birth.

The same causes are responsible to a considerable extent in producing excessive maternal mortality and excessive infant mortality in the first weeks after birth and still more in the ante-natal period. Excessive mortality of mothers in childbirth means also an excessive proportion of still-born infants and an excessive proportion of deaths of infants in the early weeks after live birth.

Although there has been a satisfactory reduction in the mortality of actual infants born, a reduction in the death-rate of mothers would still further tend to lower that rate and at the same time insure more babies being born alive. To quote from Sir Arthur Newsholme's introduction to the special report on "Maternal Mortality" made to the Local Government Board, England, 1914-1915: "Each year it is becoming more fully realized that, in order to insure healthy infancy and childhood, it is necessary that, both during pregnancy and at and after the birth of the infant, increased maternal care and guidance and medical assistance should be provided."

General experience, apart from statistical evidence, appears to point to the conclusion that the differences in maternal mortality in child-bearing in different portions of England, are caused in the main by differences in availability of skilled assistance when needed in pregnancy and at and after childbirth.

Bearing this general conclusion in mind and knowing that the maternal death-rate from conditions other than puerperal fever adversely affecting child-bearing is much lower in London than in the provinces, I did not expect to find the contrary appertained in New South Wales.

You will, however, see from the graph kindly prepared for this meeting by Mr. H. A. Smith, the Government Statistician, that the maternal death-rate in child-bearing per 1,000 births is higher for the metropolitan area of Sydney than that either for the State as a whole or for the rest of New South Wales.

It is unfortunate that in Australia there is not uniformity as far as the collection and presentation of vital statistics is concerned in the reports of the six State Governments and the Commonwealth Statistician and that the same classification and grouping of disease is not uniform practically throughout Great Britain and the British Empire. It is difficult, therefore, to compare data when there is not rigid uniformity. In the Commonwealth "Official Year Book, 1919," Mr. Knibbs informs us that 592 mothers died in Australia from puerperal causes during 1918; 539 were married, 53 were single.

The total number of nuptial confinements was 117,835, ex-nuptial confinements 6,526. Thus 1 in 219 of married mothers and 1 in 123 single mothers died from puerperal causes, the general proportion being 1 in 210 as against 1 in 215 in 1914 and 1 in 181 in 1908.

The total number of children left motherless by the deaths of the 539 married mothers was 1,573.

Although the maternal mortality rate in Australia is lower than in Scotland, where one mother dies as the result of child-bearing to every 175 registered births, in Wales 1 in 179, in Ireland 1 in 191, it is considerably higher than in England, where one mother dies to 259 births.

Maternal Mortality.

An analysis of the data of England and Wales for the four years 1911-1914 shows that of deaths assigned to complications of pregnancy and childbirth corresponding to a rate of 4 per 1,000 births, one-third were caused by puerperal fever. In New South Wales the rate for the same period was 7‰, also with one-third due to puerperal fever.

From 1895 onwards graphs of the annual death-rates from puerperal fever and from accidents and diseases of pregnancy, other than puerperal fever, in England show curves following different courses, that for puerperal fever indicating a marked and almost uninterrupted decline, whilst the death-rate from other causes of mortality from child-bearing has declined but little.

In 1914 in England, in spite of the improvement, for every 644 infants born, one mother lost her life from puerperal infection, either present before the birth of the infant or more often acquired during or soon after its birth. It is pointed out that a large portion of this mortality, with its still greater amount of associated sickness, could at once be prevented were adequate ante-natal care and skilled attendance under satisfactory conditions at and after birth made available.

One finds, however, on examining the data for the metropolitan area of Sydney for 1919 than one mother lost her life from puerperal infection for every 505

infants born, a considerably higher rate than that of 1914 in England. Each death-rate is in terms of registered, *i.e.*, living, births.

Since 1899 puerperal fever has been a notifiable disease in England. The main object of making the disease notifiable was to adopt measures to prevent the spread of infection from one lying-in patient to another.

The conclusion arrived at in England as the result of the elaborate investigation for the Local Government Board, was that the chief factor in causing the excessive mortality from child-bearing and the serious chronic invalidism often following thereon was lack of skilled medical and midwifery assistance before and during childbirth.

Eclampsia and renal disease cause about 22% of the total mortality in association with child-bearing. Early medical care would reduce this mortality.

Thirty-two per cent. of the total mortality in child-bearing are caused by infection at childbirth, whereas such infection ought to be as rare in obstetrics as it has become in surgery. In certain lying-in hospitals, where the experience is uncomplicated by the admission of patients who have already received partial treatment before admission, puerperal fever has almost completely disappeared. The extent of the decline outside such lying-in hospitals is not satisfactory. To reduce maternal mortality in child-bearing it is necessary to ascertain what cases need help.

As far as New South Wales is concerned, at present there is no definite organization to secure this end. We have no registration of midwives, no supervision of midwives apart from the registration of midwifery nurses under the *Private Hospitals Act, 1908*.

Under this Act a "midwifery nurse" means a woman who holds a certificate from a recognized maternity hospital to the effect that she has attended the practice of such hospital for not less than one year and has shown proficiency in midwifery, nursing and obstetrics. If registered by the Board of Health, a midwifery nurse may manage a private lying-in hospital, is under certain requirements and may be removed from the register. There is no obligation, however, apart from private hospitals, for midwifery nurses or midwives to be registered.

Apart from the private hospitals there is no supervision of midwives after their training is completed. There is no law to prevent untrained women practising, to limit the number of cases they may attend or to prescribe that they must obtain medical assistance in certain eventualities. There is no authority outside a private hospital to prevent a midwife attending a woman with puerperal fever and attending other women immediately afterwards. This is a risk to mothers which calls for removal as far as possible and as soon as the necessary legislation, long overdue, is passed.

During the present year, owing to the death of a woman in childbirth in one of the suburbs, under circumstances suggesting puerperal septicæmia, I had inquiry made and found that in this district there had been an unusual number of septic cases associated with parturition. The predominating feature had been the development of pneumonia early in the illness. Seven of the patients had been attended by one obstetric nurse; two of them died, whilst one woman who washed the blankets used in connexion with the last fatal case, was admitted to hospital with septic hands.

Dr. K. S. Macarthur Brown also recently, in advocating registration of midwives, referred to four patients having within two months developed puerperal septicæmia, after having been attended by a notoriously incompetent midwife. In each case the medical practitioner had been called in when it was too late to save the patient.

In 1907, when I was an officer in the Health Department of New Zealand, where puerperal fever was a notifiable disease, all registered midwives in attendance on patients suffering from puerperal fever were suspended from practice for a month. This measure was introduced to prevent the spread of infection in my district in Auckland. Monthly nurses were also prohibited from practice for one month by arrangement with the Inspector-General of Hospitals.

Although no doubt such seemingly arbitrary proceedings may in some cases appear severe, more especially where the nurse was in no way to blame, yet in the interests of the lying-in woman this precaution was deemed necessary.

In Johannesburg in the Transvaal even more drastic precautions were taken. In all notified cases, the hands of midwives or other female attendants were, as far as possible, disinfected in the presence of the inspector, by cutting and cleaning the nails, soaking the hands after a preliminary wash, then scrubbing vigorously with yellow soap and very hot water from 5 to 10 minutes and finally soaking in 1 in 200 of *izal* or *cyllin* for five minutes. Clothing or other possibly contaminated articles were also disinfected and the persons in question were required to bathe.

I found that in Auckland after public attention had been directed to this matter, some midwives voluntarily brought their baskets or kits for sterilization.

In Tasmania I managed to get the *Midwives Act* passed and it was customary to suspend from practice for at least a month all midwives who had been in attendance on patients with puerperal fever. In other cases in which unregistered women had been in attendance, special inquiry was made and the women prohibited from further practice, proceedings following for breaches of the *Midwives Act*.

On taking up duty as Metropolitan Medical Officer of Health, Sydney, in 1913, I was surprised to find that a preventible and dangerous disease, such as puerperal septicæmia, was not notifiable and in my first annual report drew special attention thereto as follows: "Next to making the notification of phthisis compulsory in New South Wales, I should consider the registration of midwives with compulsory notification of puerperal fever and powers to suspend temporarily from practice the continuance of attendance of midwives who have been associated with a case of puerperal fever, as a most important administrative measure."

Between 1893 and 1920, a period of 27 years, the loss of women in childbirth in New South Wales was over 8,000. Over one-third of this loss is attributed to puerperal septicæmia. During the period

1913 to 1919, 2,019 women died in childbirth in New South Wales, 720 of these deaths being due to septicæmia.

In the metropolitan area of Sydney last year, 112 women died in childbirth, 37 or just 1 short of one-third of the number of deaths being registered as puerperal septicæmia.

An examination of the graphs for the metropolitan area shows that in 1894, 1902 and 1913, over 50% of the total deaths in childbirth were due to puerperal septicæmia, which in those years might almost be said to have assumed epidemic proportions compared to 1891, when the mortality was 13.8%, to 1907 when it was 15.9% and to 1917 when it was 25.4%. Mr. Doyle, of the Government Statistician's Department, carefully worked out the relationship of monthly temperature and rainfall, but could find no co-relation between these factors and the mortality from puerperal fever. With regard to the relation of general sanitary circumstances, including housing conditions, especially overcrowding, methods of storage and disposal of house refuse, paving of yards and the absence or presence of a water carriage sewerage system, it is interesting to note that the investigation in England showed that some measure of crowding in rooms is not incompatible, when other circumstances are exceptionally favourable, with a low mortality from child-bearing. Mortality from child-bearing on the English evidence appears, unlike that of the general infantile mortality apart from the first month of life, to be largely independent of general sanitary circumstances.

Apart from septic disease in the mother before parturition, experience in England has shown in recent years that "the one essential in the prevention of puerperal fever is the strictest antiseptic or aseptic precautions on the part of the midwife or the doctor and the nurse."

The same point as to the former great importance attached to the part played by insanitary dwellings favouring outbreaks of puerperal fever being exaggerated is illustrated by the experience at maternity hospitals. Dr. Boxall, in reviewing the experience of the General Lying-in Hospital, London, from 1833-1904, showed that in the first two periods of 45 years the maternal death-rate averaged 3% and 2% successively, whereas for the 26 years ending with 1904, the death-rate was only 0.5%. Extensive improvements in ventilation had been previously introduced without any lowering of the toll on maternal life, but the striking improvement synchronized with the practice of strict antiseptic midwifery in the last period.

Until antiseptic and aseptic precautions become more general in private as in hospital practice, midwifery must remain an art which hitherto has been only incompletely successful in preventing avoidable deaths and lessening avoidable suffering.

The Central Midwives Board.

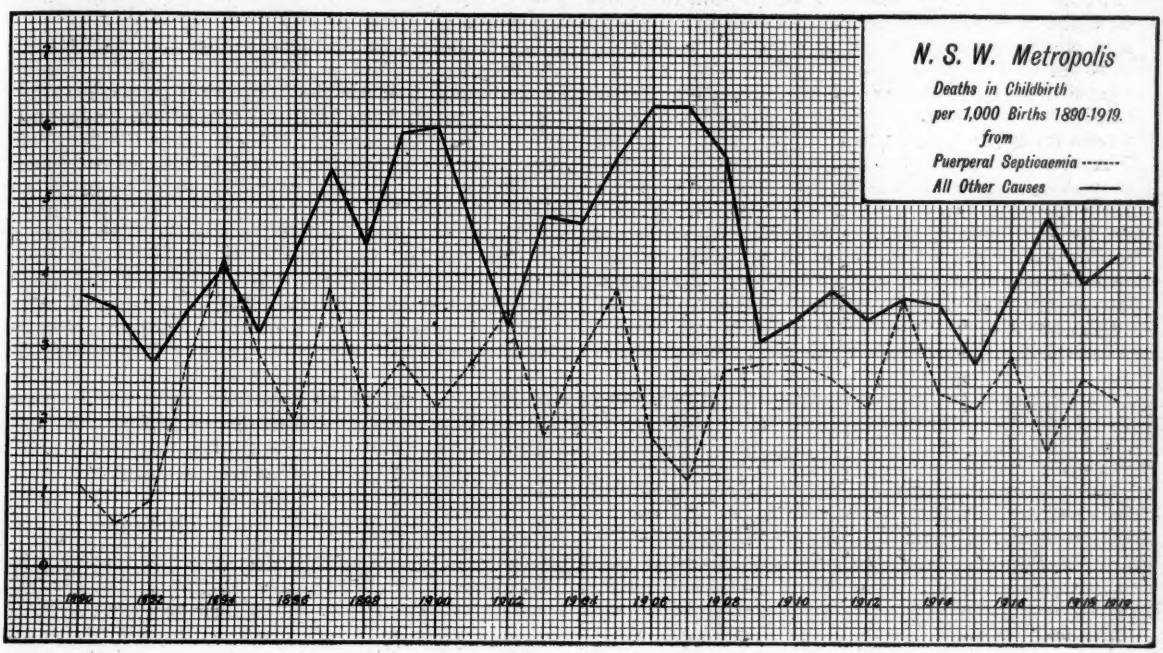
Such an extension of antisepticism and asepticism to midwifery can only be obtained by the organization of a satisfactory maternity service by extending the institutional accommodation for women during parturition and securing a higher standard of skilled assistance in home confinements with insistence on the midwife or nurse who undertakes the responsibility of attending a patient, calling in a registered medical practitioner in certain specified circumstances, similar to the procedure laid down by the rules of the Metropolitan Central Midwives Board. This Board regulates the issue of certificates, the course and syllabus of training, the conduct of examinations, the admission and restoration to and removal from the roll of midwives. The Board has regulations supervising and restricting within due limits the practice of midwives, with directions concerning their person, clothing, instruments, etc., their duties to patient and child and their obligations *re* disinfection, medical assistance and notification.

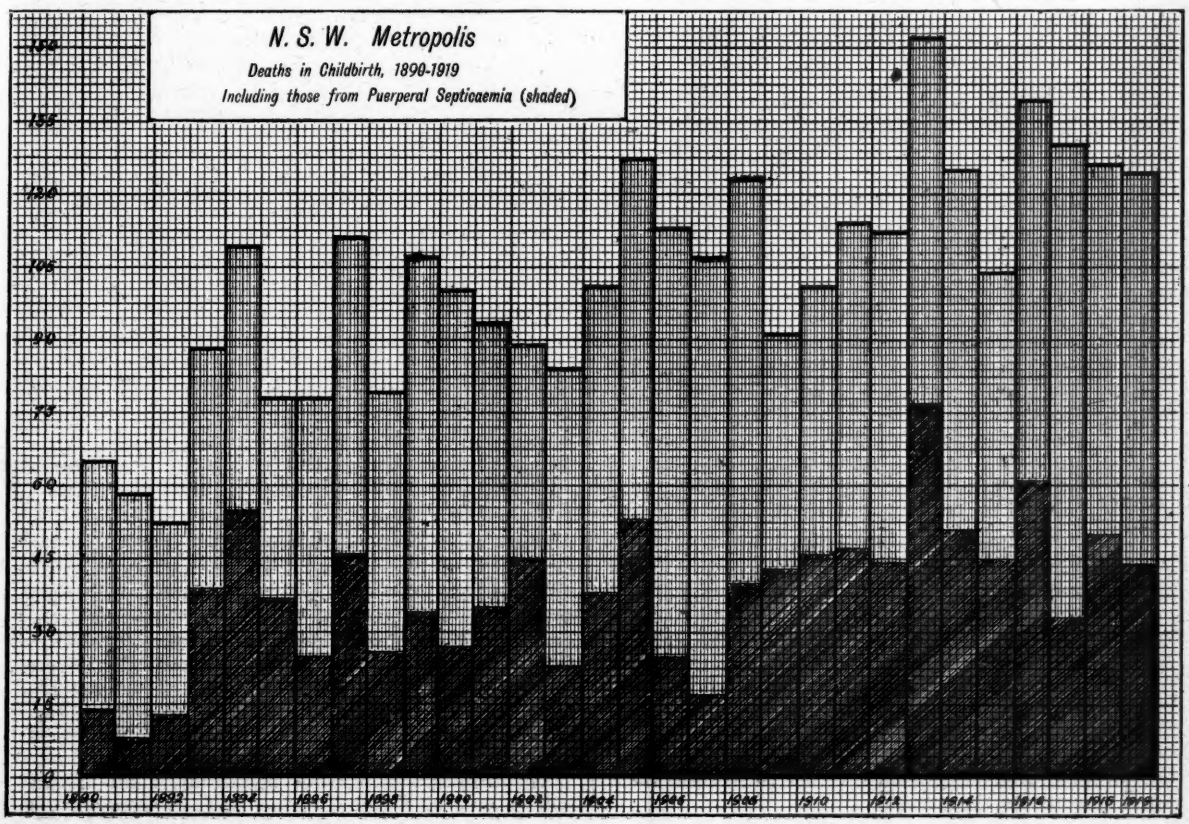
The following conditions are prescribed in which medical help must be requisitioned: In all cases of abortion, of illness of the patient or child, or of any abnormality occurring during pregnancy, labour or lying-in the midwife must explain that the case is one in which the attendance of a registered medical practitioner is required and must hand to the husband or the nearest relative or friend present, the form for sending for medical help properly filled up and signed by her, in order that this may be immediately forwarded to the medical practitioner. She must also send a copy of this form to the local supervising authority, to whom she must send also on the prescribed forms, notify deaths in all cases in which the death of the mother or child occurs before the attendance of a registered medical practitioner, in all cases of still-births where a registered medical practitioner is not in attendance at the time of birth, in all cases in which she has prepared, or assisted to prepare a dead body for burial. She must also immediately notify the local supervising authority of any change of her name and address.

The above rules are under the *Midwives Act, 1902*, which is superseded by the *Midwives Act, 1918*, which allows the local supervising authority, practically the medical officer of health, to suspend from practice a midwife who has been reported to the Central Midwives Board until a decision has been arrived at in her case and in certain circumstances to pay compensation for such loss of practice. This Act prescribes for the payment by the supervising authorities of a fee to a medical practitioner in all cases where he is called in by a midwife to her assistance in a case of emergency; the local supervising authority may recover the fee from the patient's husband or other person liable to maintain the patient, unless they are satisfied that the patient or husband or such other person is unable by reason of poverty to pay such fee. The fees are two guineas in cases of difficult labour, etc., where an operation is involved; one guinea where no operation is necessary; 3s. 6d. for a day and 7s. 6d. for a night visit.

During 1919 in London 2,034 approved claims were received from 368 medical practitioners, amounting in all to £3,047 2s., *i.e.*, an average of 30s. per case. Only 3.6% (£111 2s. 3d.) was recovered by the council.

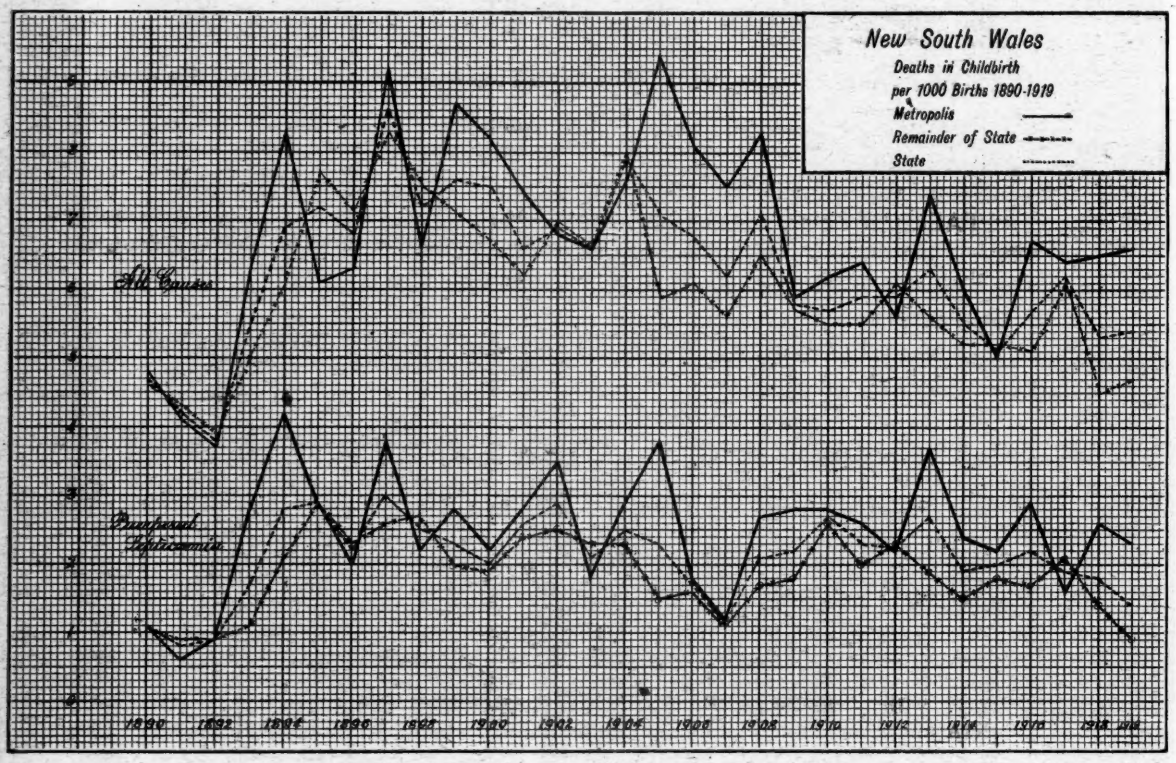
Dr. Hamer, Medical Officer of Health for London, states that, assuming that 44,000 births are attended


N. S. W. Metropolis
Deaths in Childbirth
per 1,000 Births 1890-1919.
from
Puerperal Septicaemia
All Other Causes


N. S. W. Metropolis
Deaths in Childbirth, 1890-1919
Including those from Puerperal Septicaemia (shaded)

annually by midwives, it is estimated that medical assistance was required in 12% of the cases, in 7.4% on behalf of the mother and in 4.6% on account of the child.

In March, 1919, the rule was introduced that a midwife must forthwith notify the local supervising authority of each case in which it is proposed to substitute artificial for breast feeding. All practising midwives in London, except those in hospitals under medical supervision, are subject to inspection by four women medical inspectors to ascertain whether the rules of the Central Midwives Board are being complied with as to cleanliness, the possession of antiseptics and appliances, the keeping of registers and case books and the sending of the required notices. Special visits are paid when any case of a septic nature or a persistent high temperature occurs and in all cases of inflammation of infants' eyes.



Ophthalmia Neonatorum.

It is the duty of midwives to advise that medical help is required when inflammation of the eyes, however slight, occurs in infants. There were 856 cases of *ophthalmia neonatorum* notified in London in 1919, 464 of which were not in the practice of midwives. There were 841 cases of inflammation of the eyes in the practice of midwives brought to the notice of the Council, of which 392 proved to be *ophthalmia neonatorum*, which were investigated, and 337 were reported as completely cured, whilst in 13 cases there was damage to the cornea.

In New South Wales *ophthalmia neonatorum* is not even a notifiable disease.

Dr. Halliday, in his examination into the causes of blindness in children in New South Wales, found in the Institution for the Blind that gonorrhœal infection accounted for 24% of 71 cases and gonorrhœa and syphilis together for 32%. He found that at the Royal Prince Alfred Hospital, 12 cases were treated in 1918 and 5 in 1919. Dr. Mansfield reported to him that there had been 100 cases of ophthalmia at the Royal Hospital for Women among 2,500 infants born in the last two years, but no distinction was made in this record between gonorrhœal and non-gonorrhœal cases. At the Women's Hospital Dr. Ludowici recorded 24 cases of *ophthalmia neonatorum* (gonorrhœal) in the last two years. Prophylaxis is employed as a routine in all births in these two lying-in hospitals.

Midwifery Practice.

I have tried to ascertain some facts as to midwifery practice in Sydney. Mrs. Cooper Day has recently collected data from the five lying-in hospitals in Sydney, where there are 222 beds for obstetric patients, including 40 "prematernity" beds at the Royal Hospital for Women, Paddington. In 1919 there were 2,905 births in these institutions, whilst 743 women were attended in childbirth by district nurses from these institutions. These hospitals therefore were responsible for the confinement of 3,648 women.

The number of private hospitals in the metropolitan area of Sydney, taking lying-in cases only, is

128, together with medical and surgical cases, 51, total 179.

I have been unable to obtain the exact data, but from returns under the *Private Hospitals Act*, estimating the number of beds (lying-in) in private hospitals at 975 and taking the rate of births as half that in public hospitals, that would account for 6,379, which, with those attended at and from public hospitals, accounts for 10,027.

There were in 1919 in all 18,685 registered births in the metropolis, thus a rough estimate of those confined in their own homes would be 8,658.

An analysis of the register of the Australasian Trained Nurses' Association shows that the number of obstetric nurses registered with Sydney addresses is 564, of whom 100 had six months' training, 380 12 months' training and 84 a period of training not stated. Many of the latter are life members and have been trained outside New South Wales. Many of those with 6 months' training in obstetrics are general nurses. This list does not contain all trained obstetrics nurses. A number are passed by the Board of Health as competent, but are not on the register of the Australasian Trained Nurses' Association.

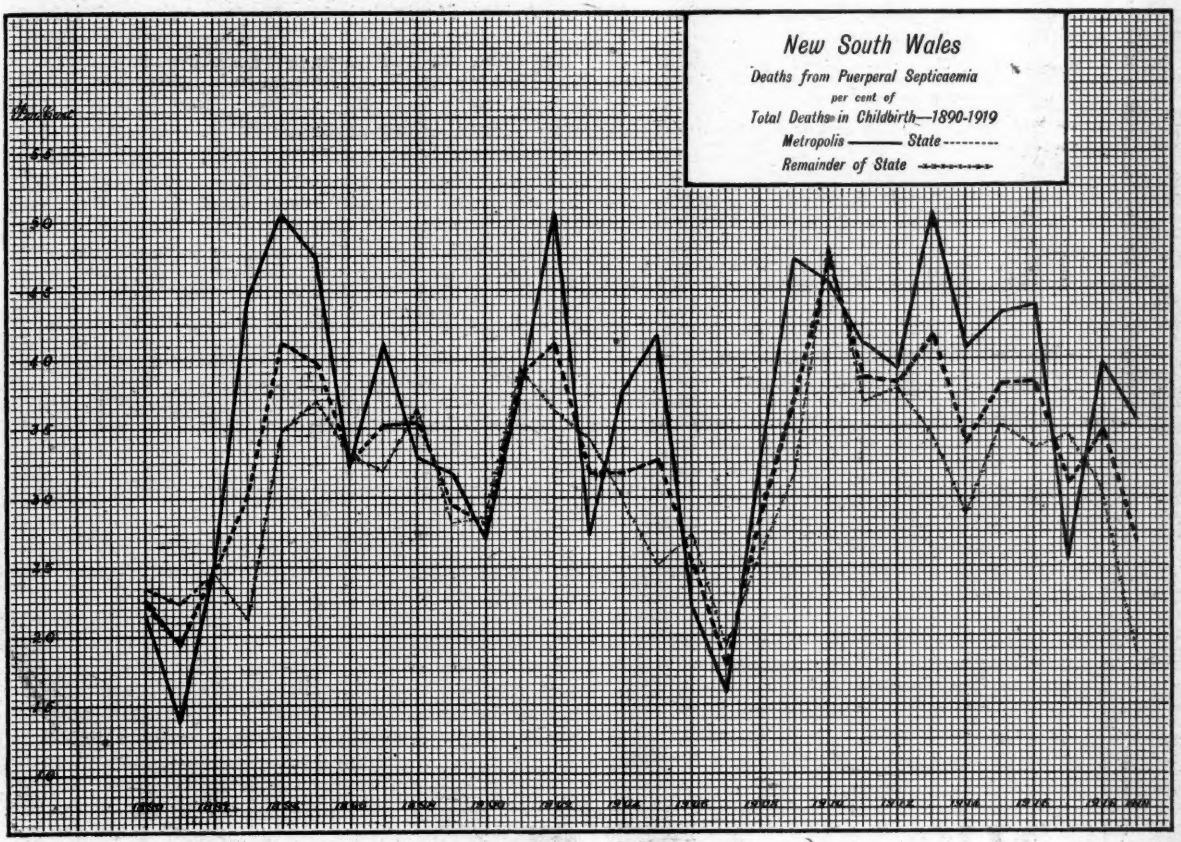
The only data I have as to the number of women attended by medical practitioners in private practice were collected for me by Miss Bloomfield, of the City Council staff. In 1914, from July to December, in the City of Sydney proper 401 mothers were attended by midwives only, 145 mothers were attended by nurses from the hospitals, 182 were confined in hospitals, one by a private nurse and two in private hospitals. Only 95 were attended by medical practitioners, that is, 11.5%, or roughly one case in nine.

In 1914 the fee of midwives was 30s., £2 2s., £2 12s. 6d. and £3 3s.. Midwives are now asking to have their fees raised to £4 4s. for ten days and some are already charging that amount.

As to the actual cost of midwifery at the present time, the following statement was made to me by an employee of the Sydney City Council as to the cost of the arrival of his fourth child as follows: £3 3s. for the midwifery nurse, £5 5s. for the doctor, £2 for two weeks' help by another woman who took over the care of the household. This man paid 18s. a week rent and was earning £5 2s. 6d. a week. The midwife in this case was attending five other patients at the same time.

I was told of one midwife who is said to have visited twenty patients in one day and to have used a horse and trap.

Dr. Killick Millard, Medical Officer of Health of Leicester, England, states that some of the midwives there attend 150 confinements in a year (three a



week) and as they have to visit each patient for ten days, it would mean that on an average they would only have to pay from four to five visits a day. This is well within the capacity of an active woman directing her whole time to the work.

We must recognize that of recent years the practice of midwifery has been passing more and more into the hands of midwives and that the medical practitioner is becoming more and more a consultant as far as childbirth is concerned.

By the adoption of regulations under a midwives act similar to those of the Central Midwives Board, England, the whole status of midwifery practice would be raised. It would be incumbent for medical practitioners to be called in more frequently than at present and there would be a reasonable prospect at least of reducing the maternal mortality rate, more especially from puerperal septicæmia. There appears to me also to be urgent need for increasing the number of available beds, both by extending the work of the present hospitals and possibly opening other institutions.

Maternity Centres.

The provision of skilled advice or assistance to expectant mothers should be made available by the establishment of ante-natal clinics, which at first would best be run in conjunction with the lying-in hospitals, with the provision of pre-maternity beds as at the Royal Hospital for Women, the whole to be linked up with the baby clinics. It is recognized that ante-natal care is the application of preventive medicine to pregnancy in the common interest of both mother and infant.

Care at this period will often secure saving of infant life or the prevention of chronic disease in childhood. Both ante-natal care and skilful midwifery are needed to insure in many instances a healthy mother able to nurse her healthy infant.

Failing these conditions there may ensue:

(1) Death of mother and infant, or death of one of these.
(2) Chronic invalidism or debility of the mother.
(3) Impairment of health of the infant by deprivation of mother's milk or through neglect of disease in the mother.

Dr. Lane-Claypon, who made a special inquiry into ante-natal work, found that at the majority of the large maternity hospitals in London arrangements existed for the medical examination and, if necessary, treatment of women in their first pregnancy, or of others with previous histories of difficult confinements. At a few hospitals all women applying for aid are seen by a member of the medical staff.

At St. Thomas's Hospital there is a complete maternity and infant welfare centre in charge of a member of the medical staff, who also attends at a second centre in a different part of the district. Every mother and infant attending the centre is seen by the medical officer.

"Incidentally, the organization of a maternity centre at a hospital has a great value for both undergraduate and post-graduate teaching in medicine. The study of minor ailments of pregnancy, as well as of its more serious complications and instruction in methods of treating and preventing them and in the prevention and treatment of infantile ailments from the earliest age up to school age are not only of great importance to the patients themselves, but equally so to every medical student and practitioner."

Ante-natal work in New York city, according to Miss Annie Goodrich, Director of the Visiting Nurse Service of Henry Street, shows satisfactory results.

The nurses have always cared for a large number of women after child-birth and for some years have given also ante-natal care. This work, which has proved itself to be one of the most important functions of the nursing service, is being done now more intensively by the addition of nurses at the time of delivery, night or day. A study of 4,683 maternity cases with 4,438 living births is as follows:

Infant Mortality.—Number of deaths of infants (under one month) per 1,000 cases, where ante-natal care and supervision have been given, 9.8.

Number of deaths of infants (under one month) per 1,000 cases, where care and supervision have been given during post-natal period only, 14.2.

City death-rate per 1,000 cases of all infants under one month, 37.

Maternal Mortality.—Number of deaths from diseases incident to childbirth per 1,000 cases of women who have been supervised and cared for during ante-natal and post-natal periods, none.

Five left Henry Street Centre and were removed to hospital; five cases of septicæmia, one of eclampsia.

Number of deaths incident to childbirth per 1,000 cases of women to whom only post-natal care and supervision have been given, none.

Six patients removed to hospital, 17 cases of septicæmia.

Miscarriages and Abortions.—Number of miscarriages and abortions per 1,000 cases, under pre-natal care, 6.8

Number of miscarriages and abortions per 1,000 cases reported for post-natal cases only, 35.7

Still-births.—Number of still-births per 1,000 cases under ante-natal care, 21.

Number of still-births per 1,000 cases reported for post-natal care only, 34.5.

The Work of an Inspector of Midwives.

In England, where qualified women in some instances have been appointed, as in London and Manchester, to carry out this work immediately under the medical officer of health, the standard of midwifery service has been raised, not only by the gradual elimination of the untrained midwife, but by the supplying of information with regard to developments in maternity nursing, infant hygiene or other matters bearing on their practice.

I have always maintained that in infant welfare work the co-operation of the midwife must be sought, as it is from her that the mother receives her first lesson in the feeding and care of the baby, being directly under her influence sometimes for weeks before and for at least ten days subsequent to her confinement.

Where children at birth are delicate or prematurely born in Liverpool such cases are reported to the medical officer of health and the health visitor for the district visits the mother and when considered

advisable for the midwife to continue in attendance beyond the ten days, she is paid to do so at so much a visit.

As far as the metropolis of Sydney is concerned, it would be advisable to have a lady medical officer supervising the inspection of midwives when these are registered and at first she could undertake this work in conjunction with visitation and supervision of the baby clinics. To obtain co-ordination of the work, however, it would be essential that such an officer work in conjunction with the Metropolitan Medical Officer of Health or directly under the Director-General of Public Health.

With regard to sending for medical help, which is a statutory obligation on a midwife under the English Act and regulations, it is found that the average percentage of cases where medical aid is called for by midwives, generally speaking rises with an increase in the knowledge of the midwife. Thus in the County of Somerset trained midwives attending 27.5% of the total births sent for medical aid in 12.8% of cases, whilst untrained midwives attending 10.2% of total births only requisitioned medical aid in 5.6% of cases attended.

If it be assumed that 50% of all births are attended by midwives and that 10% of these require medical aid, it will be seen that only about 5% of all births can be concerned. Of these, only a proportion will require public assistance. At a rate of 5%, taking the metropolitan area for 1918, with 19,526 births, reckoning a payment of £3 3s. per case, that would mean £3,075, or £1,360 at that rate only for those in private homes. It is reasonable to believe, however, that in a country where £5 is granted as a maternity bonus not quite so large a proportion would remain uncollected.

As far as New South Wales is concerned and the metropolitan area of Sydney in particular, I beg to suggest:

(*i.*) Registration and supervision of midwives, with regulations similar to those of the Central Midwives Board.
(*ii.*) Notification of puerperal septicæmia.
(*iii.*) Notification of ophthalmia of the new-born.
(*iv.*) The uniform and routine collection of statistics of hospital experience.
(*v.*) The establishment or extension of prematernity centres at the lying-in hospitals and the co-ordination therewith of the baby clinics, which would act as providers of cases for reference to the hospitals.

As a profession, I also think we should speak collectively through the Federal Committee of the British Medical Association in Australia and strenuously advocate the national aspect of this question as one affecting the future of Australia.

The whole position could not be better summarized than was done by Dr. Barrington when he stated:

> If the money spent annually, about £750,000, on the maternity bonus by the Federal Government were utilized for further up-to-date obstetric hospitals, including prematernity accommodation and pre-natal clinics, with efficiently salaried medical officers and the extension of obstetric charities carried out by well-trained obstetric nurses, under medical supervision, many valuable lives would be saved and much ill-health in women referable to the infections and traumata of childbirth would be abolished.

The Ministry of Health in England in May this year asked to be furnished with annual reports in respect of maternity homes and hospitals established primarily for normal confinements, showing:

(1) The number of patients admitted, with their average duration of stay.
(2) The number of women delivered by midwives and doctors respectively, as well as the number of cases in which the midwife sought medical assistance for special reasons.
(3) The number of cases notified as puerperal sepsis, with the results of treatment.
(4) The number of cases in which the temperature rose above 38° C. (100.4° F.) for twenty-four hours, with a rise of pulse-rate.
(5) The number of notified cases of *ophthalmia neonatorum* and of "inflammation of the eyes, however slight."
(6) The number of infants not entirely breast-fed, with the reasons for this.
(7) The number and causes of maternal deaths.
(8) The number of cases of fœtal still-births and deaths.

References.

(1) Supplement to the Forty-fourth Annual Report of the Local Government Board, England, 1914-15, with Report on Maternal Mortality.
(2) Report of Commonwealth Departmental Committee on Maternal Mortality and Invalidity in Childbirth, 1917.
(3) Report of District Health Officer, Auckland, New Zealand Health Department Annual Report, 1908.
(4) Annual Report of Chief Health Officer, Tasmania, 1912.
(5) Report of the London County Council, Medical Officer of Health, 1919.
(6) Report of the Medical Officer of Health of Liverpool, 1914.
(7) Rules of the Central Midwives Board.
(8) Report of the Royal Commission on the Birth-Rate, New South Wales, 1904.
(9) The Causes of Blindness in Children in New South Wales, J. C. Halliday, *The Medical Journal of Australia*, November 23, 1920.
(10) Presidential Address, Section of Obstetrics and Gynæcology, Australasian Medical Congress, 1920, Dr. Fourness Barrington, *The Medical Journal of Australia*, September 11, 1920.
(11) Presidential Address, Section of Obstetrics and Gynæcology, British Medical Association Congress, 1920, *British Medical Journal*, August 21, 1921.
(12) Memorandum Ministry of Health, England, Hospital Statistics, May, 1920.

Reviews.

DISEASES OF THE NERVOUS SYSTEM.

The book before us[1] is a combined treatise on neurology and psychiatry, a substantial volume of more than a thousand pages, profusely illustrated. It represents the third edition, revised and brought up to date by the inclusion of knowledge gained during the great war, of a work with which some of our readers may be familiar.

Having always recognized the kinship of neurology and psychiatry, we see the advantage of having a treatise on the two subjects under one cover and yet we cannot blind our eyes to the truth that modern neurology and psychiatry have attained such gross proportions, that if they are to be dealt with adequately, it is almost impossible to bring them into a handy volume. The authors, Drs. Jelliffe and White, must have been conscious of this difficulty; indeed,

[1] Diseases of the Nervous System: A Textbook of Neurology and Psychiatry, by Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D., Third Edition, Revised, Rewritten and Enlarged; 1919. Philadelphia and New York: Lea & Febiger; Royal 8vo., pp. 1,018, illustrated with 470 engravings and 12 plates. Price, $8.50 net.

the necessity for condensation has manifestly hampered them, because while they evidently possess a ripe knowledge of their subject and have an admirable capacity for attractive writing, it comes about that in more than a few accounts of diseases fluent description gives way to stilted sketchiness and of necessity this brings an element of inequality to the chapters. The reader will also notice evidence here and there of hasty compilation and for a book of this class, misprints are much too numerous.

The principle of classification, in the term of the phylogenetically older, is a distinctive feature. Under this principle the nervous system is divided into three levels of activity: the vegetative, the sensori-motor and the psychic. The vegetative system includes those physical and chemical activities which maintain life at the lowest level. Under this caption are placed certain affections of the sympathetic, certain skin, blood and bone syndromes, believed to be of nervous origin, and conditions dependent upon affection of the internal secretions. In other text books these are set down variously as vaso-motor and trophic diseases, diseases of obscure origin and familial diseases (Thomsen's disease, *myotonia* and some of the muscular dystrophies) and, of course, all will not agree to this allocation. At the sensori-motor level come affections of the cranial and peripheral nerves, the spinal cord and the brain. The psychic level embraces the neuroses, the neuro-psychoses and the psychoses.

We are sure the chapters on neurology will be read with absorbing interest. Many of the descriptions of diseases open with a brief but fascinating historical preface. There are few descriptive inaccuracies and few omissions. Decided opinions are boldly expressed and there is charm about the style; indeed, the chapters on neuro-syphilis, migraine and Huntingdon's chorea may be taken as examples of unsurpassed neurological expositions.

A full chapter on methods of examination of the nervous system shows how great a depth of knowledge is required to investigate a case of nervous disease, but we would rather see custom broken away from and the material of such a chapter placed under a separate cover. Similarly some highly elaborate anatomical schemes of nervous tracts, with confusingly long explanatory legends, are out of place. They savour of window-dressing; the same applies to some of the other illustrations, for instance, the collection of objects removed from the stomach of a patient suffering from tetany.

The chapters on mental disorders are disappointing; they do not bear the same mark of originality and learning as those on neurology. The opening passage that: "Present-day psychiatry is almost wholly a product of this century," will come as a shock to those even lightly acquainted with the medical history of the latter half of the last century. Attention is centred on the researches of Kraepelin and other leaders of the German school. These we do not wish to belittle, but we cannot forget that there are British, American and French schools with firmly-established doctrines. The chapters on the compulsion and anxiety neuroses appear in large measure as pure transcripts of Freud's writings; in regard to neurasthenia it is regrettable that the authors renounce the excellent literature of their own country to embrace "sexual" doctrines which to most render this disorder unrecognizable.

In conclusion, let us say that we commend the book as a comprehensive treatise and as a work of reference, particularly on vegetative neurology and endocrinology and on psychiatry as exposed by the German school.

THE PSYCHO-NEUROSES.

Dr. Millais Culpin, the author of a little book entitled "Psycho-Neuroses of War and Peace,"[1] originally presented as a thesis for the degree of doctor of medicine in the University of London, is doubly qualified to write on the psycho-neuroses, because he holds a lectureship on the subject at the London Hospital and because during the great war he had opportunity for the study of over 400 special cases. Although he does not wholly agree with the doctrines of Freud and the German school on psychological mechanisms, he treats his subject with these doctrines in view. From his experience of origins he is firmly of the opinion that in most cases there occur losses of memory for strongly emotional incidents; the revival of the memory is associated with an abreaction which measures the force of the repressed complex and this revival may dissipate the symptoms. Hence the easiest line of treatment is to revive the repression. But while this is successful in many instances, he has to admit that psychasthenics and the victims of *folie de doute* and phobias too frequently defeat efforts to unravel their mental trouble. Another point which he insists upon strongly is that no line can be drawn between the psycho-neuroses arising from war and those which occur in civil life. He states his views modestly, honestly and briefly and illustrates them with a number of interesting cases. Accordingly, although many have now written on the psycho-neuroses, we can recommend Dr. Culpin's book as a useful addition to the libraries of all interested in the subject.

[1] Psycho-Neuroses of War and Peace: Thesis Approved for the Degree of Doctor of Medicine in the University of London, by Millais Culpin; 1920. Cambridge: At the University Press; Demy 8vo., pp. 127. Price, 10s. net.

MALARIAL INFECTIONS.

The appearance of "Malaria at Home and Abroad," by Dr. S. P. James,[1] is singularly opportune at this time when so many practitioners in Australia, with little or no practical experience in dealing with the disease, are seeking enlightenment about malaria.

The arrangement of the matter is simple and perfectly clear. Every aspect of malaria is exhaustively dealt with and the careful reader will find that he is instructed not only how to recognize the disease and to treat it, but how to classify any mosquito he may chance to meet and how to detect if the insect is infected with the parasite. He will also learn how to give an expert opinion as to why mosquitoes are prevalent in a particular locality and how they can be exterminated. Indeed, he will be capable of answering almost any question that could be asked in relation to the disease. The illustrations are numerous, excellent and to the point.

Despite the authoritative position occupied by Dr. James of Adviser on Malaria to the Ministry of Health, it is difficult to avoid criticism on his suggestions as to treatment, as these differ very materially from the plan which was found to give the best results in both British and Australian hands in dealing with the disease in Palestine. It should be added that the lines of this treatment were very precisely laid down in an official memorandum issued from General Headquarters. Dr. James, while admitting that quinine in making its way from the alimentary tract through the liver, is liable to extensive destruction there, nevertheless advocates the oral route as the routine method of administration, reserving intravenous and intramuscular injections for critical cases. He fails to offer any explanation why a treatment that is the best cure in a severe infection, should be withheld in a mild one which, be it remembered, may be severe in a subsequent relapse. In view of the fact that in the vast majority of recurrences among repatriated Australians the benign tertian parasite alone has been found in the blood, it is suggestive to recall that in the Palestine campaign the routine treatment for these cases was simple oral administration of quinine, while that for the more numerous malignant (subtertian) fevers always began with a series of intramuscular or intravenous injections.

We are glad to find that the author states that careful experiment has confirmed the view that various preparations of arsenic are not efficient substitutes for quinine and we hope that this will prevent rash experiments with arseno-benzol in resistant cases and lead the medical attendant to consider carefully if his failure to effect a cure with quinine is not rather the result of defects in his method of administration than due to deficiencies in the drug itself.

[1] Malaria at Home and Abroad, by S. P. James, M.D., D.P.H.; 1920. London: John Bale, Sons and Danielsson, Ltd.; Crown 4to., pp. 234, with 105 illustrations. Price, 25s. net.

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A Retrospect.

III.

Pathology.

During the past year no disease has stimulated greater interest among pathologists than *encephalitis lethargica*. Simon Flexner who has initiated a great deal of work on this subject, is strongly of opinion that the disease represents a definite clinical and pathological entity quite distinct from acute poliomyelitis and the disease sometimes known in Australia as "X" disease. He does not admit any causal relationship between lethargic encephalitis and influenza, although some hold the opposite view. The number of autopsies that have been performed on persons dead of encephalitis, is relatively small. The morbid anatomy and histology have been worked out in considerable detail, especially by Buzzard and Greenfield in England and by Simon Flexner in America. Up to the present the causal agent has not been demonstrated. Loewe and Strauss claim to have cultivated a filterable organism from the brain, naso-pharyngeal washings, spinal fluid and blood of persons suffering from encephalitis and to have reproduced the disease by inoculation in animals. Flexner considers that, whereas acute poliomyelitis is readily transmissible to monkeys by inoculation with the affected central nervous tissue, lethargic encephalitis is either not transmissible at all or only rarely and with difficulty. The majority of bacteriologists recognize that much more work is needed before the pathogenesis of the disease can be elucidated.

Notwithstanding a considerable amount of work and the publication of almost innumerable articles, our knowledge of the ætiology and pathology of influenza has not been advanced. It must be admitted that opportunity and endeavour have not resulted in the discovery of the causal agent either of influenza or of encephalitis.

A large amount of work has been carried out in connexion with the anaerobic bacilli. The researches of Muriel Robertson, Henry and others have led to the division of the pathogenic anaerobes into serological groups.

The most severe form of dysentery met with during the war was produced by *Bacillus dysenteriæ* of Shiga. This organism has long been recognized as an active producer of a powerful toxin. Olitsky and Kliger, working with rabbits, have separated an exotoxin and an endotoxin from cultures of this organism. The two toxins are physically and biologically distinct. The exotoxin exhibits a specific affinity for the central nervous tissue of the rabbit. It gives rise to hæmorrhages and necrosis. The endotoxin exerts a typical action on the intestinal mucosa, producing œdema, hæmorrhages, ulceration and necrosis, especially in the large intestine. An inagglutinable form of Shiga's bacillus has been observed for a considerable time and has given bacteriologists much difficulty. During the year Benians produced experimentally an inagglutinable form of this bacillus by the subcutaneous injection into a guinea pig of the ordinary agglutinable bacillus suspended in mucilage of tragacanth. The inagglutinable bacillus threw off agglutinable forms, especially during the early period immediately after its isolation. Both forms were shown to be highly pathogenic for rabbits, the inagglutinable strain apparently more so than the agglutinable. Rabbits immunized against either strain were found to be protected against a lethal dose of the other strain. In the animals treated with the inagglutinable bacillus an immunity developed against both strains without the production of any agglutinin. The deduction drawn from these experiments is that the production of agglutinin is not necessarily a part of the process of immunity.

The complement fixation test in gonorrhœa is regarded by many as having passed the experimental stage. It is held to be of definite diagnostic value in many obscure cases, especially in the female. There are indications that the serological types of gonococci may be differentiated with greater accuracy in the near future. When this has been achieved, a more sensitive antigen should be available and the complement fixation test should yield more specific results. According to W. Magner the failure to fix

complement is common during the first ten or twelve days after a Neisserian infection. After this period, the serum of the majority of gonorrhœal patients reacts. In some mild cases, especially when the infection is limited to the anterior part of the urethra, no reaction is obtainable. It is stated that the more extensive the inflammation, the greater is the probability of a reaction. The serum of all patients with systemic complications invariably yields a reaction. It is assumed that the complement fixing antibody persists in the serum for about three months after the final destruction of the organisms.

The subject of the pathology of epidemic cerebrospinal meningitis has been re-opened at the annual meeting of the British Medical Association at Cambridge. J. A. Arkwright contends that the position of the meningococcus as the causal organism has been confirmed. Much work still remains to be done before the several types of meningococci can be distinguished from one another. It is held by Arkwright, Ponder and others that in view of the large number of "carriers" of meningococci or organisms so closely related to Weichselbaum's coccus that it is at present impossible to determine whether they are capable of giving rise to meningitis or not, it is neither necessary nor advisable to isolate these persons. Ponder found that carriers were very common among persons who had not been ascertainably exposed to infection. Ledingham maintains that overcrowding has a definite influence on the occurrence of meningococci in the fauces of healthy persons. He is not in favour of an attempt to discover and isolate all carriers for the purpose of stemming an epidemic. He is not prepared to entertain Gordon's suggestion that the whole community should be submitted to the effect of the inhalation chamber.

Close attention has been devoted to the study of the pathology of spirochætal jaundice. The histological changes, like the symptoms of the disease, vary considerably, not only in different cases, but also in the different stages of the same case. McNee has published the records of five autopsies. The lesions of the liver bear no resemblance to those of acute yellow atrophy. In severe cases the central part of each hepatic lobule is completely disorganized or the cells throughout the lobules are extensively damaged.

Hamilton Fairley has continued his investigations on bilharzial infections. He has produced the disease experimentally in monkeys in whom lesions corresponding closely to those found in man, occur.

F. B. Mallory and E. M. Medler have recorded some results of their investigations on the skin lesions of morbilli. The reaction both in the skin and in the buccal mucous membrane (Koplik's spots) appears to be confined to the endothelial cells lining the capillaries and to the leucocytes. In the early lesions the endothelial cells contain minute, intensely staining, spherical bodies. It is suggested that these bodies may be the causal agents of the disease. This suggestion, however, cannot be recognized until tangible evidence in its support is presented.

The introduction of Penfold's method of refusion of red cells in the process of obtaining serum from horses is an event of marked importance. At present its application is purely commercial; by its means therapeutic sera can be obtained in larger quantities from one animal and consequently the cost is reduced. Incidentally the method has a practical value from a veterinary point of view. The constitutional results of large bleedings in horses are minimized or removed. Further investigation will reveal whether this principle can be adapted to human beings, more especially in regard to transfusion of blood.

The work of Flexner and Amoss on the determination of meningeal infections by lumbar puncture, conducted in 1917, has led Reginald Webster to undertake a carefully controlled series of investigations. His results have recently been published in this *Journal*. He issues a warning concerning the possible danger of lumbar puncture in the presence of a septicæmic condition without definite meningeal involvement and recommends the withdrawal of the smallest quantity of fluid that can be satisfactorily examined, when a diagnostic lumbar puncture is carried out.

Biological Chemistry.

During the year 1920 progress has been registered in connexion with the subject of the accessory food factors. No discoveries involving new fundamental principles have been recorded, but our knowledge concerning these substances has been consolidated and extended and their significance rendered clearer. The

distribution in natural products of the various accessory substances has been investigated by numerous workers. Steenbock and his co-workers have shown that the fat-soluble A factor is present in yellow sweet potato and carrots, but is absent or present in very small amount in red beet, parsnip, potato, mangel and sugar beet. Yellow maize contains large quantities, but white maize appears not to contain any. There is a considerable amount in lettuce, spinach and chard, but less in cabbage. Steenbock and Boutwell, Rosenheim and Drummond and others have noted the apparent relation between the presence of fat-soluble A accessory food factor and yellow lipochrome pigments. Butter, fat, egg yolk and carrots which are highly impregnated with yellow pigment, are rich sources of this factor. Oleo-oils similarly pigmented and the leafy parts of plants in which the yellow pigments are masked by chlorophyll, are also amply endowed with it. Yellow maize contains both yellow pigment and chlorophyll; white maize contains neither. Lard and many of the vegetable oils are deficient in both pigments and in fat-soluble A. It would seem that, while the identity of fat-soluble A with any known lipochrome pigment is improbable, there are reasons for assuming that the former is in some way associated with this class of substance.

The thermostability of this accessory food factor is of considerable importance. It has been shown that the factor in butter and other fats is not very stable to heat. On the other hand, autoclaving fat-soluble A from yellow maize, chard, carrots, sweet potatoes and squash for three hours at a pressure of 7 kilograms does not destroy it. It thus appears that ordinary cooking has but little harmful effect.

While much work has been carried out with water-soluble B or the anti-neuritic food factor, the methods employed by a number of the American workers appear to be unsatisfactory. In 1919 Williams assumed that the yeast cell was capable of multiplying only in the presence of a medium containing anti-neuritic accessory food factor. He therefore introduced a test for this vitamine based on this assumption. Souza and McCollum have now shown that the use of yeast as a test organism for determining the presence or absence of the water-soluble B is complicated by so many disturbing factors that Williams's tests should be discarded. Recent researches by Osborne and Mendel tend to show that milk is not as rich in water-soluble B as is usually believed. The importance of this matter in regard to the artificial feeding of infants is obvious.

Delf, working with the anti-scorbutic vitamine, found that there is a reduction in the anti-scorbutic properties of cabbage when it has been heated to 130° C.; the effect of heat on swedes is less and on orange juice still less. After heating for one hour to 100° C., seven and a half times the quantity of cabbage juice is required to protect against scurvy and twice as much swede juice as compared with fresh juice. The heating to 100° C. does not appreciably diminish the protective power of orange juice.

The subject of acidosis continues to claim the attention of bio-chemists. It is beginning to be recognized that the symptoms of the so-called acidosis of diabetes are due to the action of the acetone derivatives as such and not to the acid properties of some of these derivatives. It has further been shown that the decrease of plasma bicarbonate is but one and not an important factor in the production of these manifestations. The opinion has been widely expressed that in the acidosis of conditions other than diabetes, the reduction of plasma bicarbonate is caused by the presence of fixed acids in the tissues, probably lactic acid. This production of fixed acids is the result of deficient oxygenation. Recently Haggard and Yandel Henderson have attacked this view. They have shown that intravenous injections of lactic acid do not induce an acidosis at all commensurable with the amount administered. These observers have expressed the opinion that it is improbable that such a condition as lactic acid acidosis could occur in a living being. They consider that oxygen deficiency causes overbreathing; the excess of carbon dioxide is blown off, leaving the carbon dioxide ratio, that is, the relation of H_2CO_3 to $NaHCO_3$, below normal. This alkalosis is then compensated by a disappearance of alkali from the blood.

Parson has endeavoured to show that with an increase of carbon dioxide in the blood there is an increase in the quantity of bicarbonate of soda, the additional sodium being derived from hæmoglobin which probably exists as a sodium salt at low carbon dioxide tensions. Hæmoglobin would, therefore,

possess the function of carrying carbon dioxide as well as that of maintaining the normal reaction of the blood. These functions, he considers, are as important as that of the carriage of oxygen.

Zwaardemaker has continued his studies concerning the physiological action of potassium salts. He has raised some interesting questions as to the relationship between the radio-activity of these salts and their physiological action. He has shown that potassium may be replaced in Ringer's solution used for perfusion of organs, by radio-actively corresponding quantities of any of the radio-active elements, uranium, thorium, radium, rubidium, ionium, etc..

Therapeutics.

During the year there has been no discovery of first magnitude in the domain of pharmacology, nor has there been any particular advance in the therapeutic treatment of disease. There has been a continuous stream of communications embodying the results of steady research work in the laboratories and numerous articles setting forth the conclusions obtained in the treatment of disease by various medical practitioners. Trial has been made in our chief cities of a number of proprietary preparations containing veratrine for the lessening of heightened blood pressure. Very encouraging results have so far been obtained in obstetrical practice.

Among the papers which have appeared during the year and which deserve mention, the chief place should be given to the studies of A. R. Cushny on the action of the optical isomers of the tropeines. In the course of this investigation Cushny was led to the opinion that the hydroxyl group is the determining factor in conferring the characteristic action upon glandular tissues. Hanzlik has continued his studies on the behaviour of the salicylates and has devoted much attention to the action of methyl salicylates. J. W. Gunn has investigated the carminative action of the volatile oils. Although these bodies have been utilized for over five centuries, little is known about their actions. The origin of the word "carminative" is either *carmen*: a song or charm, or *carminare*: to card wool, suggesting that they diluted or carded out the humours that gave rise to flatulence. Apart from the fact that they do act like a charm, little is known as to the nature of their effect; the relief of pain is purely subjective. Gunn has shown that these substances have a definite action upon unstriped muscle, leading to its relaxation.

In the realm of therapeutics, reference has been made in the year's literature to the use of tartar emetic and other salts of antimony in the treatment of bilharzial disease. The experience of this treatment in the Commonwealth, and especially in Victoria, establishes its value as a curative agent.

Some success has been obtained in the treatment of carriers of *Entamœba histolytica* by bismuth emetine iodide. Further work has been carried out with benzyl alcohol as a local anæsthetic. It has been found that the loss of action not infrequently noted with solutions in water, is due to the use of soft glass, which gradually renders the solution alkaline.

Ophthalmology.

The year 1920 has yielded a considerable literature on ophthalmic subjects. There does not appear to have been any contribution of unusual merit nor any containing new or original conceptions. The work of the past six years has been subjected to critical review and the science of ophthalmology has benefited thereby. Plastic surgery of the ocular appendages is still receiving close attention. There is a tendency to group this work, together with plastic surgery of the face, into a special compartment.

The importance of good eye sight to aviators has impressed workers in many fields. Much has been done, especially in America, in the attempt to formulate a standard of measurement of the stereoscopic sense. There appears, however, to be too little co-operation between ophthalmologists, otologists and physiologists in the new department of medical activity, the medical aspects of aviation.

The ocular symptoms of epidemic *encephalitis lethargica* have engaged the attention of ophthalmologists throughout the world. Many important clinical observations have been made, but there have been no records which have thrown light on the obscure problems of this disease.

Dacryo-cystitis has also been studied by many. Several new methods of draining the lachrymal sac directly into the nose have been described. These methods have been based on the principles of West and Toti. Many competent surgeons are reverting to excision of the sac, as being more satisfactory than drainage.

Sclerectomy by the trephine is still regarded by many as the best means of establishing a filtering scar in the treatment of glaucoma. Its dangers and limitations, however, are widely recognized. Ophthalmologists are making persistent attempts to find a simpler, safer and more effective operation.

Laryngology, Rhinology and Otology.

One of the most important contributions published during the year is than of Dan McKenzie on the anatomy of the aqueduct of Fallopius and its involvement in lesions of the facial nerve. The investigation was a very exhaustive one and the author spent a great deal of painstaking labour in its completion. His findings will be of much value to otologists.

Shattock has performed a valuable service to laryngology by introducing an acceptable definition of the vocal cord. He gives its exact limits as "from a point at the periphery of its superior horizontal or ventricular surface where the columnar epithelium ends and the squamous epithelium begins to the junction on its inferior or sub-glottic surface of the squamous and true columnar-celled epithelium of the trachea." A .A. Gray has added to our anatomical knowledge of the vestibule.

Retjö, of Budapest, in dealing with the labyrinthine function, maintains that the quick phasis of nystagmus originates in the maculæ. The maculæ and the semi-circular canals are connected anatomically with the muscles of the eye. He claims that the hypothesis of Ewald that the ampullo-fugal current of the endolymph diminishes the rest tonus of the labyrinth, is incorrect.

A. F. Hurst has devised a simple scheme for a rotation test of the labyrinthine function. The patient turns five times around a walking stick held in the erect position. He has his back bent and his forehead rests on the handle of the stick. He then attempts to walk along a straight line marked on the floor. A normal person diverges toward the side to which he has been turning. A person with severe vestibular disease diverges in the opposite direction.

The ear in its relation to certain disabilities in flying has been investigated during the past few years by Sydney Scott, E. R. Lewis and others. A valuable report published under the auspices of the Medical Research Committee appeared in 1919. It is now recognized that the aviator must be able to open his Eustachian tubes at will, in order to prevent excessive differences in pressure within and without the tympanic cavity. The reaction of the semi-circular canals to rotation tests is not regarded as an indication of the suitability of an individual for flying. The testing of the motion sense has been shown to be of value in excluding those who are unsuited to aviation. These tests incidentally yield a rough indication concerning the integrity of the bulb, *pons varolii*, cerebrum and cerebellum.

Stefanini has devised an apparatus for estimating the shortest interval at which sound can be discriminated. He found the minimum interval to be 0.015 second.

The subject of deafness has been examined from many aspects. J. Kerr Love has arrived at the conclusion that sporadic congenital deafness is hereditary and that the heredity is Mendelian. A. F. Hurst has challenged the usually accepted views concerning so-called hysterical deafness. He claims that it occurs most frequently in otherwise normal individuals. No satisfactory explanation has been offered of the production of deafness associated with the non-suppurative conditions.

Some advance has been made in the surgical removal of foreign bodies from the pterygo-maxillary fossa. Le Maistre advocates the approach through the mouth with the aid of the fluoroscope, a probe and long forceps. He has also had success with an incision in the inferior meatus posterior to that made for the opening of the maxillary antrum. Bellin and Vernet recommend a trans-sinuso-maxillary route, with resection of the external part of the tuberosity of the maxilla and drainage through the nose.

Tranquil tracheotomy, in which 20 drops of 2.5% solution of cocaine are injected into the lumen of the trachea before it is incised, is recommended by St. Clair Thomson, after six years' trial. Irwin Moore has revived interest in "London paste," a mixture of caustic soda and slaked lime, which was introduced by Morrell Mackenzie in 1864. He claims that it is valuable for the reduction of hypertrophied tonsils.

Our attention has been directed to an inaccuracy in the description of a book entitled *Chirurgie Réparatrice et Orthopédique*, by many authors. The price of this valuable publication is 80 francs for the two volumes and not, as stated in our issue of October 2, 1920, 80 francs for each volume.

Abstracts from Current Medical Literature.

PATHOLOGY.

(18) Multiple Embolism of Pulmonary Arterioles.

John Shaw Dunn (*Quarterly Journ. Med.*, January, 1920) used an emulsion of freshly prepared potato starch to produce multiple embolism of the pulmonary arterioles in goats and, in a few cases, in dogs, cats and rabbits. This method is believed to provide, at first, an uncomplicated condition of multiple embolism of pulmonary arterioles unlike experimental oil embolism in animals and fat embolism in the human subject. In the latter conditions a considerable amount of the embolic material passes through the pulmonary capillaries and, entering the systemic circulation, may cause lesions in the brain and elsewhere. When a large dose of starch emboli causes sudden death, it apparently acts in a very direct fashion. The arterial blood pressure falls almost at once to a fatal level and the pressure in the large veins rises simultaneously almost to the same figure, so that the circulation is brought to a standstill. There is no doubt from histological examination of the lungs in these animals that the degree of obstruction to the pulmonary arterioles is very great. Where the dose of starch is insufficient to cause sudden death, the blood pressure in the right side of the heart and great veins shows at most a transient rise immediately after the injection. Afterwards the venous pressure has been observed to remain at the normal level for more than three hours in unanæsthetized goats, although during that time the animals showed symptoms of acute illness. The arterial blood pressure has remained at or above the normal level for an hour after similar doses. The maintenance of the arterial pressure and of the blood flow in these experiments is all the more remarkable when it is considered that the vessels which are blocked, are mainly arterioles and not capillaries. Whereas for any single occluded capillary the alternative routes are practically infinite, an arteriole is an end artery on a small scale and represents a definite division of the main pulmonary artery, so that its whole function cannot be adequately taken over by any other vessel. These facts provided definite evidence of a very considerable reserve of vascular area in the lungs. More blood must pass through the unobstructed arterioles than they are normally called upon to accommodate. This result is obtained, not by diminution in the viscosity of the blood nor by increase of pressure in the pulmonary artery, but by compensatory dilatation of the unobstructed vessels. The peculiar form of dyspnœa caused by embolism is of special interest in that it appears to be determined by nervous influence, the impulses passing through the vagi. It follows almost immediately on introduction of the obstructive material and the degree of its development may be quite disproportionate to the dose of material injected. The form of the dyspnœa is similar to that which rapidly follows inhalation of pulmonary irritants; the two are in so far analogous that they are fully established before there is any production of œdema or other visible organic change in the lungs and certainly long before there is any mechanical interference with the ventilation of the alveoli.

(19) Shiga's Dysentery Bacillus.

In the *Journal of Pathology and Bacteriology*, February 20, 1920, T. H. C. Benians states that an inagglutinable strain of Shiga's bacillus was experimentally produced from an agglutinable strain, by subcutaneous inoculation into a guinea-pig of the agglutinable bacteria suspended in mucilage of tragacanth. This inagglutinable bacillus from time to time threw off agglutinable strains, especially soon after it was first isolated. The inagglutinable strain usually sedimented both in broth and saline solution. The inagglutinable strain failed to absorb agglutinin from a standard serum; it also failed to produce agglutinin when injected into rabbits. The agglutinable strain, derived from the inagglutinable, absorbed agglutinins entirely from a standard serum; on injection into rabbits it produced an agglutinating serum. Both strains were highly pathogenic for rabbits, the inagglutinable strain apparently more so than the other. Rabbits immunized against either strain were protected against a lethal dose of the other strain. In the animal injected with the inagglutinable bacillus an immunity developed against both agglutinable and inagglutinable strains, without the production of any agglutinins. The development of agglutinins is not, therefore, necessarily a part of the processes of immunity.

(20) The Diagnosis of Epidemic Encephalitis.

Leo. Loewe and Israel Strauss (*Journ. Amer. Med. Assoc.*, May 15, 1920) record the results of the injection intra-cranially into rabbits of naso-pharyngeal washings from cases of epidemic encephalitis. They claim that this procedure served as an aid to diagnosis in 78% of the cases tested. A minute filterable organism, identical to that previously described by them, was recovered in eleven of the seventeen naso-pharyngeal washings cultivated, or 64%. Inoculation of rabbits with the cerebro-spinal fluids of patients with epidemic encephalitis confirmed the diagnosis in twelve of the sixteen fluids injected, or 75%. Cultures of cerebro-spinal fluids in ascitic fluid kidney tissue medium were positive in ten out of twenty cases, or 50%. Control studies were uniformly negative. The authors consider that their positive results with cerebro-spinal fluid sharply differentiate the disease from poliomyelitis.

(21) Canine Leishmaniosis.

In the *Bulletin de l'Academie Royale de Médecine de Belgique* (tome XXIV., No. 10), J. Havet records the results of his investigations into the organic lesions of experimental canine leishmaniosis, using the dog and the mouse as the experimental animals. Laveran, in a recent article, states that visceral canine leishmaniosis very probably must be identified with human kala azar and its rôle in the propagation of the latter, though still ill-defined, is hardly open to doubt. As a result of his researches on the lesions of experimental kala azar in the dog, Nicolle concluded that in the dog, as in the child, the cells invaded with parasites belong for the most part to vascular endothelium and that the Leishman-Donovan bodies attack for preference the endothelial cells of the capillaries. The present work was begun in Laveran's laboratory at the Pasteur Institute. The author found that intra-peritoneal injection of an emulsion of spleen, liver or bone-marrow from a dog or mouse infected with canine leishmaniosis led to a generalized infection in which numerous parasites are found in all the organs of the injected animal after a relatively short time. The infection is markedly retarded if before the injection of the spleen, liver or bone-marrow a preliminary injection of cultures of the parasites is made. Unlike Nicolle, he found the parasites almost entirely in the mononuclear white blood cells, which are often very large and exert their phagocytic properties as evidenced by the fact that their cytoplasm is filled with parasites. The large mononuclear macrophages accumulated at certain point abut one against the other in such a manner as to form a mass of cells rich in parasites and constituting the centre of a nodule which is itself surrounded by mononuclear white cells of normal size. It is only secondarily that the endothelial cells of the vessels and the epithelial cells of the organs are invaded by the parasites. The latter pass from the mononuclear white cells to the vascular endothelial cells and the epithelial cells of the organs. The intimate contact between these various elements favours this passage. The author is of the opinion that one cannot regard leishmaniosis as an infection of vascular endothelium. Some observers have seen under the microscope very slow movements in the parasites. It is not without interest to find that in the tissues the leishmania can displace themselves and pass from one cell to another or out of the capillaries in the brain to take up a position, either isolated from one another or in small masses, in the network of nerve fibres and neuroglia. The cells of Küpffer have a close connexion with the very delicate network of fine fibrils which surround the hepatic cells. They were at first looked on as nerve cells, then as endothelial cells and as plasma cells disposed around capillary vessels. Some authors regard them as being endowed with marked phagocytic properties, but in experimental canine leishmaniosis in the dog and in the mouse these properties were not appreciable.

PÆDIATRICS.

(22) Speech Disorders and Defects.

Children suffering from speech disorders and defects attending the speech clinic of the University of California Medical School are divided into groups according to the type of the defect and are given class instruction wherever possible and individual treatment in special cases. The Director of the Clinic, M. F. Gifford (*Arch. of Pædiatrics*, May, 1920), classifies the speech defects under four headings. (1) Those found among the psychopathic types of children. These include stammering or a spasmodic action of the speech muscles, stuttering or a repetition of the initial sound of a word and cluttering or rapid, choppy, indistinct speech. (2) The second group includes neurotic, organic or sluggish articulation of the elements of the language. Many of these are infantile mistakes, such as lisping and other substitution of sounds. By the term "organic" is meant malformation of the speech organs, such as teeth, palate and jaw defects and nasal or throat obstructions which affect speech. In another group the defective speech of the children is due to a foreign language environment. (3) There may be sluggish enunciation due to a careless use of the jaws and lips. Among these are the nasal, harsh, high-pitched, weak, hoarse, tense or thick voices. (4) Outside these types are the cases of aphasia, aphonia and mutism. Patients belonging to the last type are examined first for hearing defects; next mental tests are made to determine the presence of mental deficiency or aphasia. The aphonia cases may be due to hysteria, to a partial paralysis of the larynx muscles or to throat tumour. The conditions, *e.g.*, stammering, found in the first group are now considered to be neuroses, caused by a severe fear shock, in some way associated with the effort to speak. Treatment consists in rectifying the child's environment, in protecting him from ridicule both at home and abroad and in building up his self-confidence and poise. Physiological speech drills also bring about conscious control of the speech mechanism. The emotional training is very important. The patients in the second group with disorders of articulation require individual instruction. In many cases children may have perfect hearing and yet fail to perceive distinctions in sounds. The first step in treatment is to rectify any auditory defect. The second is to use every means to quicken the perception of differences in sounds. Mirrors and pictures showing the contact of tongue and palate will give the visual impression; practice with the tongue and palate in the necessary position will give the tactile and muscular sensations for the production of the required sound. The lessons are given in steps of progression from the simple sound to all its combinations in words and sentences. Where muscular development is poor or faulty, exercises are given to develope breath and diaphragm control. Nose and throat obstructions must, of course, be removed. In the third group exercises are instituted to develope free jaw and lip action. Often a child's speech has so many substitutions of sounds that it is almost unintelligible. Frequently such children are classified as mentally deficient and unequal to any school recitation. However, in many cases a few months of instruction and home co-operation completely clear up these defects. In the mentally deficient these articulation defects are frequently found in degrees ranging from no speech, unintelligible jargon, substitution of many sounds up to ordinary infantile mistakes known as "baby talk."

(23) Acute Cerebro-Cerebellar Ataxia.

Encephalitis is of not uncommon occurrence. In the majority of cases the cerebrum bears the brunt of the attack, but it is possible for the cerebellum to share in the process, or even to exhibit the chief symptoms. It is doubtful whether the process is limited to the cerebellum in any case. Symptoms pointing to cerebrum involvement have been observed from time to time to time. J. P. Crozer Griffiths (*Amer. Journ. of Dis. of Children*, August, 1920) reports in detail four cases of cerebro-cerebellar ataxia observed during a period of five years. He recognizes a condition in which an acute hæmorrhagic encephalitis involves the cerebellum and which could be designated "acute cerebellar encephalitis." As the condition is always associated with symptoms indicating an involvement of the cerebrum, he prefers to call it "cerebro-cerebellar encephalitis" or "cerebro-cerebellar bulbar encephalitis." The degree to which the process involves one or another part of the brain varies. In some instances the cerebellar lesions predominate, in others the cerebral, but in all in the category of cerebellar encephalitis there is a combination of the symptoms affecting both regions. In very many cases the cerebellum escapes entirely as far as symptoms indicate. The cause of this cerebro-cerebellar encephalitis varies. In the majority of cases previously reported some infective disease had preceded the attack, as was the case in two of the author's patients. Amongst the symptoms most often to be seen are unconsciousness, usually of but short duration, ataxia and affection of speech. There may be a complete inability to speak, which may last for months. In other cases it is manifestly an ataxia of speech rather than a mental disturbance. In the next place there is a disturbance of mentality apart from unconsciousness. It is usually temporary, but may be very persistent. Nystagmus was observed in two of the author's patients and has been reported in a number of others. It is usually not present. Loss of power is at times a very evident symptom. It is, however, usually absent and is probably nearly always dependent on an ataxia. In a few instances there has been a decided temporary hypotonia. The tendon reflexes are usually active. Among other symptoms may be mentioned vertigo. The prognosis, as far as life itself is concerned, would appear to be good. There is, however, some uncertainty whether or not the clinical evidence of the disease will persist. The author's first patient recovered completely. The second was left with a slight incoordination persisting more than three years after the attack. The third exhibited nine months later slight mental retardation and some remains of the cerebellar symptoms. The fourth had apparently recovered four months later, except that speech was still slow. Griffiths considers it probable that all the symptoms will eventually disappear.

(24) Intestinal Parasites in Young Children.

Most investigations into the presence of intestinal worms in children have been carried out on children over three years of age, usually in institutions. S. McLean (*Journ. Amer. Med. Assoc.*, June 26, 1920) decided to examine the stools of infants and children under 12 years of age, without reference to the medical condition of the child. Specimens were taken at random from patients and visitors in an out-patient department. It was found that a history of symptoms, commonly associated in the minds of the laity with the presence of intestinal parasites, could be elicited frequently from parents of children over 12 months of age. These symptoms are restlessness at night, grinding of the teeth, picking of nose and lips, loss of weight, capricious appetite and irritability. Examination was made in all of 308 stools—from infants up to 12 months, 53; during the second year of life, 66; during the fourth year, 56; and from children of four to twelve years, 69. Of these 308 stools only 7 or 2.27% were found to harbour parasites. If the statements of the parents could be accepted regarding their findings of worms in the stools, the percentage would be higher. Of the 53 examinations of stools from infants during the first year, none were positive. Of the 66 from infants during the second year, none was positive. Of the 64 during the third year, 3 were positive. In two children, 28 months old, the ova of *ascaris* were found; in a third child, 26 months old, the *oxyuris* parasite. Of the 56 examinations in the fourth year, none was positive. Of the 69 cases in children from 4 to 12 years, 4 were positive, *i.e.*, 5.7% of the children harboured intestinal parasites. It is possible that the ova of *oxyuris vermicularis* escaped detection in certain stools, as frequently they are only found about the anal folds. The examination of stools for ova in infants under one year of age was made because many infants over 9 months receive the same variety of food in limited amounts as children during the second year of life and are as susceptible to infection,

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held on October 29, 1920, in the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. C. Bickerton Blackburn, O.B.E., the President, in the chair.

Dr. J. S. Purdy, D. S.O., read a paper on maternal mortality (see page 39).

Dr. Fourness Barrington wished to tender his thanks to Dr. Purdy for his most instructive paper, in which he had crystallized his wide experience. It was full of the most unpleasant truisms. He agreed with Dr. Purdy's conclusion in regard to reform. He wished to make a few remarks from the obstetrical standpoint. In the first place, it was necessary to take stock of the equipment possessed by practical obstetricians. They claimed that for every obstetrical complication they had a procedure which could meet it. There was no peril which beset a woman in labour, from which they had not the means to rescue her. He referred to the strictly obstetrical complications. Appropriate treatment was available for malpresentations, mal-positions, deformed pelves of whatever degree, hæmorrhage of every sort, rupture of the uterus. The same might be said concerning eclampsia, which was to a great extent preventible. This had been tested time and again, and had stood the test, provided that the patient came under the care of the obstetrician within reasonable time. This was the profession of the obstetrician at the present time, armed with accurate knowledge of his art and with anæsthesia and the most approved ritual of antiseptic and aseptic surgery. Surely, one would think that with this equipment the litany for "all women labouring with child" had become obsolete. The litany went up each day from trembling lips and sinking hearts. Every year during the last ten years in New South Wales one woman in every 175 perished in the perils of childbirth.

When they looked at the facts more closely, they found that the mortality rate from puerperal fever was greater than it had been before the introduction of anæsthesia and antiseptics. Between 1847 and 1856, during the early days of anæsthesia, before antiseptics had been introduced, the rate in England and Wales was 1.8‰, while between 1886 and 1895, when anæsthesia and antiseptics were in general use, it had risen to 2.45‰. In New South Wales from 1909 and 1919 inclusive the mean rate was 2.1‰. Were they to conclude that the discoveries of Simpson and Lister had been in vain in so far as obstetrics were concerned? In New South Wales during the past ten years the mortality from all puerperal causes, *i.e.*, puerperal fever and all accidents of childbirth, was 5.7 per 1,000 registered births or one death in 175. The odds in favour of a woman having a family of five without losing her life was only 35 to one in New South Wales. The midwife, much as she had been compelled to play the part of the scapegoat, could not carry the whole of the burden.

At the Rotunda Hospital, Dublin, from 1905 to 1908, there had been 6,053 deliveries, including every possible complication from outside and every variety of dystochia, and the mean mortality had been 0.41%, while the mortality from infection had been 0.15%. During the same period the mean mortality at Queen Charlotte's Hospital in London among 6,807 women had been 0.4%, and the mortality from infection had been 0.15%. The same results were obtained at the best hospitals in Australia. In these hospitals thousands of women had been delivered consecutively without a single death from infection, when they had been treated at the hospital from the start. That was a great argument in favour of increasing the number of beds in the existing hospitals and of opening new obstetric hospitals.

Dr. Barrington asked why the results in private practice were so far behind those obtained under institutional care. He feared that a considerable part of this mortality must be underwritten by the medical profession. He held that a marked diminution in the mortality would occur when three things were more fully recognized. The first was that normal labour was a natural process which was best left severely alone. "Hands off!" should be the maxim, and especially in the third stage. The majority of cases were normal. The second point was that the moment they interfered with normal labour, it became a complex and dangerous process. The third maxim was that when interference was indicated, it must be carried out in accord with the best principles of antiseptics and asepsis. All improvements would depend on better education of medical students, obstetric nurses and the general public. When the people were taught by lectures or brochures, as was done by the New Zealand Government, the urgent need for systematic pre-natal care and the essentially surgical nature of labour, they would begin to understand the significance of good obstetrics. In conclusion, Dr. Barrington called attention to the fact that all statistics were based on registered births. It would be more satisfactory and more complete if an enactment could be introduced for the early, compulsory notification of still births.

Dr. S. H. MacCullock congratulated Dr. Purdy on his admirable paper. He expressed misgivings concerning the value of statistics. What was included under the term "puerperal mortality?" Did it mean all puerperal deaths or only those from sepsis? He did not think that notification would do any good. The authorities in England had objected to notification. He held that it was essential to educate the public more particularly on the ultimate results of immorality. It was not generally recognized how serious were the effects of primary syphilis and acute gonorrhœa contracted during late pregnancy. The lecturer in obstetrics at the University of Sydney received a fee that would scarcely pay for his diagrams. Dr. MacCullock held that there should be a chair of obstetrics properly endowed. There was a professor of veterinary science; this meant that they looked after cattle and pigs far better than they looked after women. In the next place the training of nurses and midwives should be improved. Dr. MacCullock pointed out that at the Women's Hospital, Crown Street, asepsis, even when applied under bad conditions, had yielded excellent results. Since a special ward for women suffering from septic conditions had been opened at the Hospital, it had not once been empty. The education of the midwifery nurse in this institution had led to a great reduction in mortality. This result was even more pronounced in the far out-back districts. Registration of midwives was urgently needed. In conclusion, Dr. MacCullock expressed the opinion that until they gave their young medical practitioners more actual experience during the curriculum, the mortality would not be diminished.

Dr. J. C. Windeyer held that the main measures for reducing maternal mortality were (*i*) the supervision and regulation of nurses, and (*ii*) the medical supervision of pregnancy. The three main causes of death in childbirth were (*i*) sepsis, (*ii*) eclampsia, and (*iii*) hæmorrhage. Sepsis was the most common of the complications. It was possible to deal more or less effectively with sepsis and eclampsia by supervision and pre-maternal examination. Abnormal conditions could be recognized before labour set in, and, if necessary, the women could be referred to hospital or some other institution. In regard to hæmorrhage, medical practitioners should realize that the majority of deaths from this cause would not occur, if they refrained from interfering with the uterus in the third stage of labour.

Dr. R. Gordon Craig called Dr. Barrington's attention to an apparent discrepancy in the statistics quoted by him. The mortality at the Rotunda and Queen Charlotte's Hospitals had been given as 0.4% and 0.15%. This was 4‰ and 1.5‰. The mortality from puerperal sepsis among the general population of New South Wales had been given as 2.1‰. There did not seem to be a very striking difference. Did Dr. Barrington not mean that the hospital figures were 0.4‰ and 0.15‰?

Dr. Barrington explained that the hospital figures were necessarily high, because so many women on admission were already infected. The figures he had quoted were correct.

Dr. W. H. Crago referred to the work of Victor Bonney, who had shown that in addition to infection from without, autogenous infection frequently occurred. He had called attention to the fact that the ordinary measures of asepsis failed to prevent the occurrence of puerperal sepsis de-

pending on organisms normally found on the skin of the anal region. Bonney was of opinion that the spread of the infection was not necessarily the result of a mechanical conveyance of organisms from the skin to the interior of the uterus by the hands or instruments of the obstetrician. It appeared to take place automatically through the medium of the return or reverse currents described several years ago by Bond. Dr. Crago thought that this origin of puerperal sepsis was of importance, and should be considered in any attempt to deal with the whole matter.

Dr. Harvey Sutton, O.B.E., expressed the view that the high death-rate was not solely due to the inefficiency of the medical practitioner or of the midwife. The majority of women were not attended by either in child-birth. The departmental committee of the Department of Trade and Customs appointed to inquire into the causes of death and invalidity in the Commonwealth, had pointed out that the puerperal mortality was high in all the States. Midwives acts were in full operation only in Western Australia and Victoria. It had been shown that the introduction of the *Midwives Act* in Great Britain had not at first materially lowered the mortality, but with better machinery later improvement had occurred. There had been a considerable reduction in the two Australian States mentioned before this measure had been introduced, showing that the public opinion that supported the legislation, was already operating in improving mortality. The public had taken a vivid interest in the matter. The means for attacking the problem might be classed under four headings. In the first place there was the law. Legislative enactments should be employed at once to control the training and work of those engaged in caring for the woman in labour. In the second place the subject could be approached by statistical methods. There was need for more and better information concerning deaths from puerperal causes. In the third place research could and should be employed. He knew of no research that had been undertaken to probe this and other obstetrical matters to the bottom. Education of mothers and of potential mothers was the last and best method. Dr. Sutton stated that more deaths occurred during the second or subsequent birth than during first. This circumstance seemed to indicate that with care and the full utilization of the experience gained during the first parturition many of these deaths could be prevented. He approved of the establishment of ante-natal clinics. It would be advisable to devote £1 of the £5 bonus to this purpose. Propaganda was needed to awaken a spirit of enthusiasm in the importance of the proper care of the child-bearing woman.

Dr. R. Worrall advocated the doing away with the five pound bonus. He pointed out that the Australasian Medical Congress has demanded that the money should be spent in a manner that would yield benefit to the community. He was strongly in favour of notification of puerperal infections by the midwife to the Board of Health. In the next place, there should be better education of the medical practitioner. Hasty and incompetent midwifery practice was deplorably prevalent. The teaching of the subject in the University should be revised and rendered more efficient. The subject was very important, and a more prominent place should be accorded it in the curriculum. Dr. Worrall had advocated patience in the third stage for over thirty years. The reverse had had a disastrous effect on a large number of women.

He was pleased to hear Dr. Crago mention the work of Bonney in connexion with autogenous infection. There was no doubt that a local immunity was produced to the organisms present in the vagina, but not to those transplanted from the bowel. He differed from Bonney in one respect. Bonney still believed in the left lateral position for delivery. He (Dr. Worrall) delivered all women on the back. It was a more suitable position. He also referred to his practice of making a clean cut backwards in the perineum to prevent a ragged tear.

Dr. D. Luker thought that a committee should be appointed to consider and evolve a definite scheme for the education of the public and for the adoption of other measures aiming at the reduction of the maternal mortality. He thought that information concerning the whole subject should be spread broadcast. Activity was needed. Hygienists were often so trammelled with office detail and deadened by public apathy that they became half-hearted and wanting in energy. He had been greatly impressed by the enthusiasm displayed by Dr. Purdy. He begged to move that a committee be appointed, and suggested the names of Drs. Barrington, Windeyer, MacCullock and Worrall. After some general discussion the committee, consisting of Drs. Barrington, MacCullock, Windeyer and McClelland, was appointed.

Dr. Kate Knowles called attention to the fact that a large proportion of the registered private hospitals in Sydney and also throughout the State were maternity hospitals; nearly all were understaffed. In some there were as many as five beds and only one certificated nurse, who, in addition to her hospital work, attended midwifery patients outside the institution. It was impossible for her to give adequate attention to the patients in the hospital under such conditions, especially when labours were conducted without a doctor. An investigation into the number and cause of still births occurring would be interesting and might lead to a diminution of the present number. She urged that a larger staff of certificated nurses should be compulsory. She suggested that the money spent on paying the bonus would be of more advantage to those for whom it was originally intended, if it were employed in establishing fully equipped maternity wards in all the district hospitals. There should be a definite scale of charges; free treatment should be given in those cases in which the combined income of the parents was £200 per annum and no other child and so on.

Dr. C. Bickerton Blackburn, O.B.E., said that it was very gratifying to realize that Dr. Purdy's thoughtful paper had elicited so excellent a discussion. He referred to the large number of one-child marriages and the enormous loss this partial sterility of women entailed for the State. In many instances it was obvious that the inability to bear a second child dated from an infection at the confinement.

In his reply Dr. Purdy expressed the opinion that a certain amount of good would accrue if compulsory notification of puerperal sepsis were introduced. He agreed with all Dr. Barrington had said concerning the registration and supervision of midwives. There was question as to the need for such a measure. It was possible that if they had an efficient Midwives Act. the expedient of notification of puerperal fever by medical practitioners might be waived. He was pleased that a committee of competent men had been appointed. It would be advantageous if the Federal Government could be persuaded to equip maternity hospitals and ante-natal homes throughout the Commonwealth.

Dr. Fourness Barrington moved:—

> That it be a recommendation to the Council to request the Government to introduce a bill for the registration and supervision of midwives.

In support of this motion, Dr. Barrington pointed out that the maternal mortality was higher in New South Wales than in any other State in the Commonwealth. In all the States except New South Wales and South Australia, registration of midwives had been introduced. As a large proportion of confinements was in the hands of the midwives, it was important to raise their status and usefulness in the public interest. He claimed that registration and supervision of midwives would result in a greatly reduced mortality. This was born out by the statistics of England and Wales. The following figures were quoted:—

TABLE I.

Deaths from Puerperal Sepsis.

1901	2.24 deaths per 1,000 births
1902[1]	2.14 deaths per 1,000 births
1903	1.82 deaths per 1,000 births
1904	1.80 deaths per 1,000 births
1905	1.88 deaths per 1,000 births
1906	1.80 deaths per 1,000 births
1907	1.66 deaths per 1,000 births
1908	1.46 deaths per 1,000 births
1909	1.64 deaths per 1,000 births

[1] *Midwives Act* introduced.

The decline in the mortality since 1901 was thus 30%.

In New South Wales there were still 2.1 deaths per 1,000 births.

TABLE II.

All Deaths from Puerperal Sepsis and Accidents of Child-Birth.

1901	4.65 per 1,000 births
1902	4.54 per 1,000 births

1903	4.09 per 1,000 births
1904	3.93 per 1,000 births
1905	4.20 per 1,000 births
1906	4.04 per 1,000 births
1907	3.90 per 1,000 births
1908	3.67 per 1,000 births
1909	3.77 per 1,000 births
1910	3.56 per 1,000 births

In New South Wales the rate was 5.7 per 1,000 registered births.

In the metropolitan area the rate was 7 per 1,000 registered births.

TABLE III.

Annual Death-Rate from Puerperal Sepsis and Accidents of Child-Birth Per Million of Population Living in Successive Quinquennial Periods from 1876 *to* 1910.

1876-1880	142
1881-1885	165
1886-1890	142.6
1891-1895	167.8
1896-1900	137.6
1901-1905	120.4
1906-1910	97.8
1907	81

In 1907 621 women were saved from these diseases, who would have died in 1902.

TABLE IV.

Proportion of Deaths of Mothers from Puerperal Fever and Accidents of Pregnancy and Child-Birth to Births.

1897-1906	One mother to every 228 births
1907	One mother to every 261 births
1908	One mother to every 280 births
1909	One mother to every 270 births

In New South Wales one mother died from these causes to every 175 registered births during the period from 1909 to 1919.

Dr. J. C. Windeyer seconded the motion. He contented himself by saying that the measure was an obvious necessity. The motion was carried.

Medical Societies.

THE OPHTHALMOLOGICAL SOCIETY OF NEW SOUTH WALES.

The annual general meeting of the Ophthalmological Society of New South Wales was held at the Sydney Hospital on August 4, 1920, Dr. F. Guy Antill Pockley, the Vice-President, in the chair.

After the annual report and the financial statement had been presented, it was announced that the following office-bearers and members of Council had been elected for the ensuing year:—

President: Dr. Gordon MacLeod.
Vice-President: Dr. Guy Antill Pockley.
Honorary Treasurer: Dr. J. C. Halliday.
Honorary Secretary: Dr. J. J. Kelly.
Members of Council: Dr. R. H. Jones and Dr. E. A. D'Ombrain.

Dr. F. J. Blaxland read notes of an unusual case of toxic amblyopia. The patient was an active, wiry station-owner, aged 45 years. When seen on May 14, 1920, he complained of a gradually extending dark area in front of the right eye, which had existed for four months. There was no nystagmus. The pupils were equal and reacted normally to light and accommodation. There was no paresis of the ocular muscles. The vision of the right eye was $^6/_{24}$ + 0.5 sph.. For the left eye it was $^6/_6$. There was a large central scotoma on the right side. The disc and the macular region were normal, as was the lens. There was no papillitis and no error of refraction. The patient denied having had syphilis; he also stated that alcoholism, abuse of tobacco and the toxic effects of arsenic, lead, etc., were absent. The teeth were sound and clean, but there was a mild gingivitis of the gums of the upper and lower jaws.

Dr. Blaxland was so suspicious that lead was the cause of the condition that he advised the patient to seek for a possible source of poisoning. A week later the patient wrote to the effect that he had been using for several years an ointment made of white lead and linseed oil as a domestic remedy for piles. At the end of a month the vision had improved and the scotoma was lessened. Dr. Blaxland pointed out that the absence of papillitis, the unilateral nature of the lesion, the absence of colic and the association of amblyopia with a central scotoma caused by lead poisoning were interesting points in the case.

Dr. R. H. Waddy reported a case of coloboma of the iris, ciliary body, choroid and optic nerve. The patient, a child, aged 10 years, had been weakly since birth. Since early childhood nystagmus had been present and was aggravated by excitement of fear. There was a partial coloboma of the right iris extending from the margin of the pupil downwards for 3 mm., but not to the outer margin. There was no involvement of the lens and the vitreous was clear. A typical coloboma of the choroid extended to the lower margin of the disc, which was not implicated. The coloboma extended downwards in the shape of a fan towards the equator, beyond which it extended, probably involving the ciliary body. The surface of the colobomatous area was snow-white and was traversed by retinal vessels, a few choroidal vessels appearing here and there at the sharp pigmented border. The retinal vessels were apparently healthy and the macular was not affected. In the left eye there was a triangular lenticular opacity, directed downwards and inwards. The opacity was confined to the posterior cortical area and possibly the capsule. It did not reach as far as the equator of the lens. The vitreous was clear. There was a coloboma of the choroid extending above the optic nerve for a distance equal to the diameter of the disc. It presented appearances very similar to those of the coloboma of the choroid in the right eye, but was considerably larger. There was a large coloboma of the optic nerve. The disc had a horizontal and flattened appearance, with vessels issuing from the upper and lower margin of the neural coloboma. The macular region was unaffected and the retinal vessels were normal.

A rapid, horizontal nystagmus was present. Examination of the eye was thereby rendered very difficult. The vision in each eye was less than $^6/_{60}$. A low degree of hypermetrophic astigmatism was present. Dr. Waddy stated that the first case of coloboma of the iris was recorded in 1673. The condition was congenital and it was assumed that it was due to developmental error in connexion with the closure of the fœtal cleft in the early months of embryonic life. A coloboma not infrequently ran from the pupillary border to the optic nerve and involved all structures of mesoblastic origin. Occasionally accessory atypical colobomata were also present. In the case he had demonstrated there were some cicatricial bands of very white tissue just below the left disc.

Dr. Guy Antill Pockley presented a little girl patient in whom he had performed Krönlein's operation. This child had been shown at a previous meeting. The ptosis had practically disappeared and the eye was almost normal.

Dr. Pockley also showed a patient with vernal catarrh. The patient had been under observation for some years. There had been little change in the condition.

Dr. Temple Smith showed a child of three years on whom he had operated when it was three months old for a venous nævus at the inner angle of the orbit. The angioma had then been exposed by reflecting the upper lid downwards and ligatured. Complete obliteration, however, had not been effected. The child had returned with recurrence. The tumour filled out the inner angle of the orbit, causing partial ptosis and also appeared in the conjunctival sac as a purplish cockscomb excrescence. There seemed to be some dangers in attacking it now by ligature and excision, apart from the difficulty. He asked the opinion of those present for suggestions as to treatment.

He also showed a boy of twelve years with absolute glaucoma. The eye affected had always been myopic and almost amblyopic. As there were extensive areas of atrophy in the retina and choroid, the other eye being emmetropic, he suggested that it was congenitally defective. The boy had been brought up about two months ago with a widely dilated pupil, cloudy cornea, slight ciliary redness and high tension. There was no vision. There was a history of a red and painful eye some months previously, for which he had not sought treatment, and there was evidence of

iritis in the presence of a pigment ring on the lens. The case was evidently one of secondary glaucoma, but was interesting in view of the youth of the patient. He did not propose to do anything unless the eye became painful, when he would excise.

THE VICTORIAN MEDICAL WOMEN'S SOCIETY.

Twenty-five years ago a few women medical graduates in Melbourne joined together for the purpose of taking some action to safeguard their common interests. In those days, medical women stood in a class by themselves in the medical profession. They were few in number and their position needed stabilizing. It was felt that unless co-ordinate action were taken, women practitioners would be penalized by having to work at a lower remuneration than men and would be placed at a disadvantage from a scientific point of view. The result of these considerations was the formation of the Victorian Medical Women's Society. On January 15 to 18, 1921, the members of this Society will meet in Melbourne to celebrate their "silver" anniversary. Some of the original members will be present. The President, Dr. Lillian Helen Alexander and Dr. G. Clara Stone took a prominent part in the foundation. Invitations have been addressed to medical women in the other States and it is anticipated that about 60 medical women will sit down to dinner at the Grand Hotel on January 15, 1921.

The first meeting will be held on the afternoon of the fifteenth at the Lyceum Club, when papers will be read and discussed on medical women's work in the several States. The subject of the effect of a University course on the health of the women will also be debated. On Monday and Tuesday, January 17 and 18, the mornings' work will comprise attendance at the Queen Victoria Hospital, where there will be demonstrations of work and operations. A reception will be given at the Town Hall on the evening of January 17, while the Committee of the Queen Victoria Hospital will hold an "At Home" to the members during the afternoon of Tuesday, January 18. In the evening of the eighteenth the subject of venereal diseases clinics will claim the attention of the members. It will thus be seen that the programme has been wisely arranged to admit of adequate discussion of a few important subjects. It often happens that the agenda papers of meetings of medical societies are so crowded that full and final discussion becomes impossible.

This is the first time that an attempt has been made to bring medical women in the Commonwealth together. There are 171 medical women in Australasia; so large a section of the medical profession has a right to make itself heard. We wish the organizers of this conference signal success. At the same time we would express the hope that the medical women of the Commonwealth will not endeavour to isolate themselves from the main body of the profession. The Society has a rule which excludes from attendance at its meetings any male medical practitioner. Surely there are occasions when it might be to the advantage of the Society to invite a stranger to its meetings. It is certain that it would be to the advantage of the stranger to be allowed to enter the sacred portals and to listen to the views and opinions of women who have made themselves eminent in spite of much opposition and many difficulties.

MEDICAL OFFICERS' RELIEF FUND (FEDERAL).

The Trustees of the Medical Officers' Relief Fund acknowledge with thanks the receipt of the following donations and promises since the last list was published:

(NINETEENTH LIST.)

Western Australia.

	£	s.	d.
Dr. D. P. Clement (additional)	20	0	0
Dr. Toyajiro Tsukano (additional)	13	0	0
Dr. W. H. Nelson (additional)	5	5	0
Dr. E. C. Dean (additional)	5	0	0
R.M.J., per Editor, *M.J.A.*		7	6

Victoria.

Dr. J. A. Harbison	50	0	0
Dr. L. J. Balfour	21	0	0
Dr. L. Alexander	2	2	0
Victorian Branch (surplus from Dinners)	7	14	7

South Australia.

Dr. F. S. Hone	40	0	0
Dr. H. Halloran (additional)	10	0	0
Savings Bank Interest	4	5	4

New South Wales.

Dr. S. J. Woolnough (second donation) ..	1	1	0

Total to date: £12,203 18s. 3d..

THE PROPHYLAXIS OF ANTHRAX.

A modification of the measures taken to prevent the importation of shaving and other brushes infected with *Bacillus anthracis* has been introduced in a proclamation (*Commonwealth of Australia Gazette*, No. 116, December 30, 1920). The importation of shaving brushes made from the hair of animals and manufactured in eastern or south-eastern Asia, India, Ceylon, Japan, the East Indies or the Philippine Islands is prohibited, but other brushes or toilet articles made from or containing the hair of animals and manufactured in these countries, may be imported if a certificate is presented from a responsible official of the health department of the country of origin satisfactorily identifying them and testifying that the hair used has been cleaned and disinfected before manufacture.

An announcement, copied from the *London Gazette*, is published in the *Commonwealth of Australia Gazette*, No. 116, of December 30, 1920, to the effect that His Majesty the King has given to Major Alan Worsley Holmes à'Court unrestricted permission to wear the *Medaille des Epidemies (en argent)*, which has been conferred on him by the President of the French Republic.

Mr. A. R. Cohen, of the Australian Esperanto Association, has requested us to state that an announcement by Dr. Karlo Mezer, of Budapest, Hungary, appears in the journal *Esperanto* (October, 1920) to the effect that he intends to publish a new medical journal, written in Esperanto, under the title, *International Medical Review*. Dr. Mezer appeals for assistance in translations from medical men in all parts of the world who are interested. Sympathizers and intending subscribers are asked to communicate with him.

REPRINTS OF ARTICLES PUBLISHED IN *THE MEDICAL JOURNAL OF AUSTRALIA*.

It has been our practice to offer the authors of articles appearing in the columns of this *Journal* reprints at cost price. Unfortunately, the ever increasing cost of production and of paper has been reflected in the accounts which we have been compelled to render to those who have ordered and obtained reprints. The cost of a few reprints of a short article at the present moment is very high. In order that authors may realize the full effect of basic wage and other awards on the price of reprints, we append below the charges obtaining at present. Postage is included in the figures. Unless authors give specific instructions, reprints are prepared in small size (demy octavo). An article occupying 1½ pages of the *Journal*, will make up to four pages of reprint size; an article occupying about 3 pages will make up to eight pages of reprint size and so on.

	4 Pages.			8 Pages.			16 Pages.		
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25 copies		18	6	1	8	0	1	17	6
50 copies	1	2	6	1	14	0	2	6	0
100 copies	1	11	6	2	6	0	3	4	0
250 copies	2	12	6	4	4	0	5	6	0

Books Received.

NERVES AND THE MAN: A Popular Psychological and Constructive Study of Nervous Breakdown, by W. Charles Loosmore, M.A.; 1920. London: John Murray; Crown 8vo., pp. 223. Price, 6s. net.

PREVENTION OF VENEREAL DISEASE, by Sir Archdall Reid, K.B.E., M.B., C.M., F.R.S.E., with an Introductory Chapter by Sir Bryan Donkin, M.D., F.R.C.P.; 1920. London: William Heinemann (Medical Books), Ltd.; Crown 8vo., pp. 447. Price, 15s. net.

AN INDEX OF SYMPTOMS: With Diagnostic Methods, by Ralph Winnington Leftwich, M.D.; Seventh Edition, revised by H. N. Warner Collins, B.Sc., M.R.C.S., L.R.C.P.; 1920. London: John Murray; Crown 8vo., pp. 595. Price, 15s. net.

A RESEARCH ON THE EUCALYPTS AND THEIR ESSENTIAL OILS, by Richard T. Baker and Henry G. Smith, F.C.S.; Second Edition; 1920. Sydney: Published by Authority of the Government of New South Wales: Royal 4to., pp. 471, copiously illustrated. Price, £2 10s

TEXTBOOK OF TRACHEO-BRONCHOSCOPY (Technical and Practical), by Sanitätsrat Dr. M. Mann, translated by A. R. Moodie, M.A., M.D., Ch.B., F.R.C.S.; 1920. London: John Bale, Sons & Danielsson, Ltd.; Crown 4to., pp. 292, with 50 illustrations and 5 plates in the text and 10 coloured plates in the appendix. Price, 31s. 6d. net.

Proceedings of the Australian Medical Boards.

SOUTH AUSTRALIA.

The undermentioned have been registered as duly qualified medical practitioners under the provisions of the *Medical Act, 1919*:

Williams, Cyril John, L.R.C.P. and S. and L., Edinburgh, 1882.
Francis, Shirley Elliston, M.B., B.S., Melbourne, 1920.
Wallace, Hugh Gilmour, M.B., B.S., Melbourne, 1920.
Mahon, James Edmund, M.B., B.S., Melbourne, 1920.
Hetzel, Kenneth Stuart, M.B., B.S., Adelaide, 1920.
Hussey, Percival Francis Leitch, M.B., B.S., Adelaide, 1920.
Steven, Walter Edward, M.B., B.S., Adelaide, 1920.
Watson, Arthur Harrison Edward, M.B., B.S., Adelaide, 1920.
Wurm, Bertram Eric, M.B., B.S., Adelaide, 1920.
Walmsley, Robert Leitch Eric, M.B., B.S., Adelaide, 1920.

The additional degree of M.D., Adelaide, 1920, was added to the name of Albert Ray Southwood, M.B., B.S..

Medical Appointments.

Dr. M. B. Johnson (B.M.A.) has been appointed Quarantine Officer at Albany, Western Australia.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxiii.

(Late) German New Guinea Public Service: Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C..

Branch.	APPOINTMENTS.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIA. (Hon Sec., Medical Society Hall, East Melbourne.)	All Institutes or Medical Dispensaries. Manchester Unity Independent Order of Oddfellows. Ancient Order of Foresters. Hibernian Australian Catholic Benefit Society. Grand United Order of Free Gardeners. Sons of Temperance. Order of St. Andrew. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

Jan. 18.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Jan. 20.—Western Med. Assoc. (N.S.W.), Blayney.
Jan. 26.—Vic. Branch, B.M.A., Council.
Jan. 27.—S. Aust. Branch, B.M.A..
Jan. 27.—Q. Branch, B.M.A., Council.
Feb. 1.—Federal Committee of the B.M.A. in Australia.
Feb. 2.—Vic. Branch, B.M.A., Presentation of Balance Sheet, 1920.
Feb. 4.—Q. Branch, B.M.A..
Feb. 8.—N.S.W. Branch, B.M.A., Ethics Committee.
Feb. 10.—Vic. Branch, B.M.A., Council.
Feb. 11.—Q. Branch, B.M.A., Council.
Feb. 11.—S. Aust. Branch, B.M.A., Council.
Feb. 15.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Feb. 15.—Illawarra Suburbs Med. Assoc. (N.S.W.), St. George District Hospital.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney. (Telephone: B. 4635.)